ОПИС НА ДОКУМЕНТИТЕ, СЪДЪРЖАЩИ СЕ В ОФЕРТАТА

за участие в процедура за възлагане на обществена поръчка с предмет:
Модернизация (ретрофит) на възлови разпределителни станции 20 (10) kv и изграждане на вериги на телемеханика, реф. № PPD 18-103

Наименование на документа	**Форма на документа** (оригинал или заверено копие)/**Страница №** (да се попълни)
Опис на съдържанието	Оригинал от стр. А до стр. Б
Единен европейски документ за обществени поръчки (ЕЕДОП) „МИГ 23" ЕООД	Оригинал 1 бр. CD
Техническо предложение	
Предложение за изпълнение на поръчката в съответствие с техническите спецификации и изискванията на възложителя(по образец)	Оригинал от стр. 1 до стр. 8
Изискуема документация с технически данни, протоколи от типови изпитвания, сертификат/акредитации на независими изпитвателни лаборатории, удостоверения за одобряване на типа на ТИТ и НИТ, **Декларации от Участника, че предложеното оборудване в процедурата отговаря на минималните технически изисквания на Възложителя (оригинали)**	Заверени копия от стр. 9 до стр. 412
Декларация за съгласие с клаузите на приложения проект на договор(по образец)	Оригинал стр. 413
Декларация за срока на валидност на офертата(по образец)	Оригинал стр. 414
Ценово предложение	Оригинал стр. 1
Приложение 1 - Стойностна сметка	Оригинал стр. 2
Приложение 1.1 - Цена за изготвяне на работен проект, съгласно техническото задание на възложителя и наредба № 4 от 21.05.2001 г. За обхвата и съдържанието на инвестиционните проекти, необходими за изпълнение на ретрофита по обособена позиция № 2	Оригинал от стр. 3 до стр. 4
Приложение 1.2 - Цена за осъществяване на авторски надзор по време на смр по обособена позиция № 2	Оригинал стр. 4
Приложение 1.3 - Количествено-стойностна сметка (ксс) за доставка на материали, апаратура, оборудване и съоръжения за изпълнение на модернизацията (ретрофит) на възлови разпределителни станции ср.н. по обособена позиция № 2	Оригинал от стр. 5 до стр. 8

Приложение 1.4 - Количествено-стойностна сметка (ксс) за изпълнение на необходимите дейности за изпълнение на модернизацията (ретрофит) на възлови разпределителни станции ср.н. по обособена позиция № 2	Оригинал от стр. 9 до стр. 11
Приложение 1.5 - Цена и доставка на резервни части по обособена позиция № 2	Оригинал стр. 12
Приложение 1.6 - Цена за изготвяне на програма и обучение на специалисти на възложителя по обособена позиция №2	Оригинал стр. 12
Приложение 1.7 - Цена за изготвяне на екзекутивна документация по обособена позиция № 2	Оригинал стр. 12

Дата 17.12.2018 г.

ПОДПИС и ПЕЧАТ:

На основание чл.36а ал.3 от ЗОП

Б

a

ТЕХНИЧЕСКО ПРЕДЛОЖЕНИЕ

ЗА УЧАСТИЕ В ОТКРИТА ПРОЦЕДУРА
ЗА ВЪЗЛАГАНЕ НА ОБЩЕСТВЕНА ПОРЪЧКА С ПРЕДМЕТ:

Модернизация (ретрофит) на възлови разпределителни станции 20 (10) кV и изграждане на вериги на телемеханика
Реф № PPD 18-103
Обособена позиция 2 /ОП 2/ Модернизация (ретрофит /проектиране, реконструкция, доставка и монтаж на машини и съоръжения, подготовка и въвеждане в експлоатация/) на възлови разпределителни станции 20 (10) кV и изграждане на вериги на телемеханика в регион регион „Перник - Кюстендил“ и регион „Благоевград“

Подател: „МИГ 23” ЕООД
Адрес за кореспонденция:
1612 гр.София,
ж.к. „Красно село”
ул. „Костенец”№12
тел: 02/ 9 526 925
факс: 02/ 9 526 925
e-mail: mv@mig23-bg.com

ТЕХНИЧЕСКО ПРЕДЛОЖЕНИЕ

Поставя се в комплекта на техническото предложение за съответната обособена позиция

ПРЕДЛОЖЕНИЕ
ЗА ИЗПЪЛНЕНИЕ НА ПОРЪЧКАТА
ЗА ОБОСОБЕНА ПОЗИЦИЯ 2

ДО: „ЧЕЗ РАЗПРЕДЕЛЕНИЕ БЪЛГАРИЯ" АД,

ОТ: **"МИГ 23" ЕООД**
(участник)
адрес: гр. София, р-н Красно село, ул.. „Костенец" , №. 12
тел.: **.0884 274016** факс: **02/ 9526925**; e-mail: **mv@mig23-bg.com**
Единен идентификационен код: **131490350,**
Представлявано от **Антон Иванов Илиев – Управител** (*длъжност*)
Лице за контакти: **Божил Рангелов**, тел.: **.0884 274016**, факс: **02/ 9526925**, e-mail: **mv@mig23-bg.com**

УВАЖАЕМИ ГОСПОЖИ И ГОСПОДА,
След като се запознахме с изискванията на възложителя за изпълнение на обществена поръчка с реф. № PPD 18-103 и предмет: „Модернизация (ретрофит) на възлови разпределителни станции 20 (10) kV и изграждане на вериги на телемеханика, **обособена позиция 2,** аз долуподписаният **Антон Иванов Илиев,** в качеството си на представител на **"МИГ 23" ЕООД** (участник), декларирам, че:

В случай че бъдем определени за изпълнител на обществената поръчка, декларираме, че:
1. Ще изпълняваме договора съгласно техническите изисквания на възложителя, представени в т. 4 "от раздел I. на документацията за участие и съгласно Техническите спецификации и изискванията на възложителя за изпълнение на поръчката (Раздел II) от документацията за участиеВсички материали, апаратура, оборудване, съоръжения и резервни части, които ще доставим и ще влагаме при изпълнение на предмета на поръчката ще са нови, неупотребявани, придружени от декларации и/или сертификати/декларации за съответствие, съгласно изискванията наТехническите спецификациии изискванията на възложителя за изпълнение на поръчката.
2. Задължаваме се при всяка доставка на материал и/или апаратура и/или оборудване и/или съоръжение и/или резервни части, същите да бъдат придружени от изискуемите документи съгласно договора и приложенията към него.
3. Представяме изисканата информация в Техническо предложение за оборудване – Приложение 2 към настоящото Предложение за изпълнение на поръчката, като:
4.1. Представям попълненно „Гарантирано предложение" в таблиците с технически данни. Предлаганото от нас оборудване отговаря на минималните технически изисквания на Възложителя, които не съдържат графа „Гарантирано предложение" в таблиците на техническите спецификации на стоката от раздел II. „Технически спецификации и изисквания на възложителя за изпълнение на поръчката" от документацията за участие.
4.2. Представям всички изисквани данни и документи от таблиците с Изисквания към документацията и изпитанията. Запознат съм с изискването, че представените документи трябва да бъдат на български език или с превод на български език, придружени с оригиналните документи, с изключение на каталозите и протоколи от изпитания /в случай, че се изискват/ за материалите, които могат да се представят и само на английски език.
При представяне на цял каталог следва допълнително да представя и информация с номер на страница и позиция на съответен технически параметър в каталога.

4. Запознат съм, че представените от нас технически документи са доказателство за декларираните технически данни и параметри на предлаганото оборудване.
5. Заявяваме, че предлаганите от нас материали, апаратура, оборудване, съоръжения и резервни части са с технически характеристики покриващи посочените от възложителя в раздел II. „Технически спецификации и изисквания на възложителя за изпълнение на поръчката" от документацията за участие.
6. Ще изпълняваме договора съгласно техническите изисквания на възложителя, представени в раздел II. «Технически спецификации и изисквания на възложителя за изпълнение на поръчката» от документацията за участие, които са включени като Приложение № 3 към договора за изпълнение на обществената поръчка.
7. Потвърждаваме, че доставяните от нас материали, апаратура, оборудване и съоръжения ще отговарят на посочените от възложителя стандарти или на еквивалентни. В случай, че даден материал, апаратура, оборудване и съоръжение отговаря на стандарт, еквивалентен на посочения от Възложителя в раздел II.

„Технически спецификации и изисквания на възложителя за изпълнение на поръчката" от документацията за участие, се задължаваме да го отразим в отделен документ и да представим доказателства за еквивалентността на двата стандарта заедно с настоящото предложение за изпълнение на поръчката.

8. С настоящото гарантираме, че ще изпълним сроковете за изпълнение на поръчката, определени в Приложение 1 към настоящото Техническо предложение.

9. Гарантираме, че предложеното оборудване за Комуникация на цифрови защити /ЦЗ/ и контролер с RTU отговаря на посочените в Приложение 3 минимални технически изисквания на Възложителя.

10. Предлагаме гаранционни срокове:

10.1. за новодоставеното оборудване (прекъсвачи, разединители, токови и напреженови измервателни трансформатори,вентилни отводи и друго) е **3(три) години** (не по-кратък от 3 години, считано от деня на въвеждането на строителния обект в експлоатация).

10.2. за цифрови устройства за релейни защити и апаратура за ТМ, ТИ, С и ТК) е **5(пет) години** не по-кратък от 5 години, считано от датата на подписване на приемо – предавателен протокол между Възложител и Изпълнител при доставка.

10.3. за строителните работи гаранционните срокове съответстват на минималните гаранционни срокове, посочени в Наредба № 2 от 31 юли 2003 г. за въвеждане в експлоатация на строежите в Република България и минималните гаранционни срокове за изпълнени строителни и монтажни работи, съоръжения и строителни обекти.

11. Задължаваме се в рамките на гаранционните срокове всички разходи по отстраняване на дефекти или замяна на дефектни материали, апаратура, оборудване, съоръжения и резервни части с нови, включително демонтаж, товарене, транспорт, разтоварване и монтаж (инсталиране) да са за наша сметка.

Участникът да представи необходимата техническа документация (включително част от каталози), даваща пълно описание, технически данни и характеристики на конкретното предлагано оборудване (съобразно техническите параметри на Таблиците на Възложителя) при подаване на офертата. При представяне на цял каталог участникътдопълнително да представи информация с номер на страница и позиция на съответен технически параметър в каталога.

Неразделна част от настоящото предложение са следните приложения:

Приложение № 1 - Срокове за изпълнениена дейностите;
Приложение № 2 - Техническо предложение за оборудване;
Приложение № ... – други по преценка на участника;

Дата **14.12.2018** г.

ПОДПИС и ПЕЧАТ:

На основание чл.36а ал.3 от ЗОП

(длъ ... ника)

ПРИЛОЖЕНИЕ 1

СРОКОВЕ ЗА ИЗПЪЛНЕНИЕ НА РЕТРОФИТА

Срокът на договора за изпълнение на обществената поръчка за всяка обособена позиция е **четири календарни години (48 месеца)**, считано от датата, на която е сключен или до достигане на стойността, за която е сключен, в зависимост от това кое събитие ще настъпи първо по време. При настъпване на първото по време от тези събития, договорът ще се счита за автоматично прекратен без да е необходимо уведомление или предизвестие на която и да е от страните до другата страна.

СРОКОВЕ ЗА ИЗПЪЛНЕНИЕ НА МОДЕРНИЗАЦИЯТА (РЕТРОФИТ) ЗА КОНКРЕТЕН ЕНЕРГИЕН ОБЕКТ ОТ СЪОТВЕТНА ОБОСОБЕНА ПОЗИЦИЯ:

1. **Изготвяне на линеен график и работен проект:**

Срокът за изготвяне на линеен график и на работен проект за конкретен енергиен обект от съответна обособена позиция е до **10 дни**, след получаване на възлагателен протокол/ поръчка.

2. **Съгласуване на работния проект с „ЧЕЗ Разпределение България" АД;**

Срокът за съгласуване на работния проект за конкретен енергиен обект от съответна обособена позиция е до **5 дни** след датата на предаването му на Възложителя.

3. **Доставка на материали, апаратура, оборудване и съоръжения, съгласно съгласувания работен проект:**

Срокът за доставка на необходимите материали, апаратура, оборудване и съоръжения за изпълнение на съгласувания работния проект и резервните части за конкретен енергиен обект от съответна обособена позиция, включително и изработката на врати и детайли в заводски условия, е до **60 дни** след датата на получаване на възлагателен протокол/ поръчка, по количествено – стойностни сметки към договора и изготвения проект.

4. **СМР за изпълнение на модернизация (ретрофит) на възлова станция Ср.Н., от съответна обособена позиция:**

СМР за изпълнение на модернизация (ретрофит) на конкретен енергиен обект (възлова станция Ср.Н) от съответна обособена позиция, включително и веригите за телемеханика, вторична комутация е **до общо 20 дни** от датата на получаване на възлагателен протокол/ поръчка. СМР ще бъде възложено след съгласуван работен проект и доставени материали, апаратура, оборудване и съоръжения, необходими за изпълнението на модернизация (ретрофит).

Срокът за СМР за изпълнение на модернизацията (ретрофит) ще бъде разделен на:

- Срокът за СМР за изпълнение на модернизацията (ретрофит) на едно линейно присъединение Ср.Н. от конкретния енергиен обект по избор е **до 3 дни** от датата на получаване на възлагателен протокол/ поръчка;
- Срокът за СМР за изпълнение на модернизацията (ретрофит) в целия обем за конкретния енергиен обект е **до 17 дни** от датата на получаване на възлагателен протокол/ поръчка;

5. **Обучение на специалисти на Възложителя:**

- Срокът за изготвяне на програма за обучение на специалисти служители на Възложителя и предаването ѝ за одобрение е **до 5 дни**, считано от датата на съгласуване на работния проект от Възложителя и предаването му на Изпълнителя;
- Срокът за одобрение на програмата за обучение е **до 2 дни** след датата на предаването ѝ на Възложителя.
- Срокът за провеждане на обучението и сертифицирането на служители на Възложителя за работа и поддръжка на новоизградените съоръжения, цифрови устройства и др. е **до 10 дни,** след датата на одобрение на програмата за обучение от Възложителя.

6. **Предоставяне на екзекутивна документация:**

Срокът за предоставяне на екзекутивни чертежи с нанесе всички изменения, настъпили в процеса на модернизацията (ретрофит) на конкретен енергиен обект от съответна обособена позиция, е **до 5 дни** след приключване на СМР в целия обем, но не по-късно от датата на провеждане на 72 часовите проби под напрежение и товар.

7. **Провеждане на 72 часови проби под напрежение и товар:**

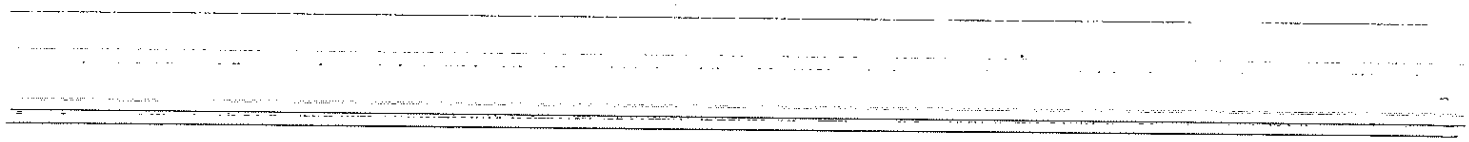
Провеждане на 72 часови проби под напрежение и товар и въвеждане на енергийния обект в режим на телемеханика стартират от момента на подписване на протокол от вътрешната приемателна комисия за приемане на ретрофита /модернизацията/ на конкретен енергиен обект от обособена позиция в пълен обем.

Дата **14.12.2018** г.

ПОДПИС и ПЕЧ

На основание чл.36а ал.3 от ЗОП

...астника)



ПРИЛОЖЕНИЕ 2

Техническо предложение за оборудване

Участникът следва да попълни тип/референтен номер, съгласно каталог на производител, производител и декларация, че предлаганото от него оборудване отговаря на минималните технически изисквания на Възложителя, посочени в таблиците.

А) ТРИПОЛЮСНИ ВАКУУМНИ ПРЕКЪСВАЧИ, 24 KV, ЗА МОНТИРАНЕ НА ЗАКРИТО, ФИКСИРАН МОНТАЖ С ТЕХНИЧЕСКИ ХАРАКТЕРИСТИКИ В ТАБЛИЦА 1

- ***Технически данни за триполюсни вакуумни прекъсвачи, 24 kV, 1250 A, за монтиране на закрито, фиксирани:***

Наименование на материала		Триполюсен вакуумен прекъсвач, 24 kV/1250 A/20 kA, за монтиране на закрито, фиксиран
№	**Технически параметър**	**Гарантирано предложение**
1.	Тип/референтен номер съгласно каталога на производителя	3AE5
2.	Производител	Siemens AG - Германия

- ***Технически данни за триполюсни вакуумни прекъсвачи, 24 kV, 630 A, за монтиране на закрито, фиксирани:***

Наименование на материала		Триполюсен вакуумен прекъсвач, 24 kV/630 A/20 kA, за монтиране на закрито, фиксиран
№	**Технически параметър**	**Гарантирано предложение**
1.	Тип/референтен номер съгласно каталога на производителя	3AE5
2.	Производител	Siemens AG - Германия

- ***Изискуема документация, която се предоставя от Участника при подаване на офертата на хартиен носител за всяка обособена позиция:***

№	**Наименование на документацията**	**Предоставени документи**
1.	Техническо описание на прекъсвача, в т.ч. гарантирани параметри и съоръжаване	**Документ 1**
2.	Протоколи от типови изпитвания на английски или български език, проведени от независима акредитирана изпитвателна лаборатория– заверени копия (и допълнителни изпитвания, ако са проведени), с приложен списък на отделните изпитвания на български език.	**Документ 2**
3.	Сертификат/акредитация на независимата изпитвателна лаборатория, провела типовите изпитвания – заверено копие	**Документ 3**
4.	Декларация от Участника, че предложеното оборудване в процедурата отговаря на минималните технически изисквания на Възложителя, посочени в таблица 1	**Документ 4**

Б) ТОКОВИ ТРАНСФОРМАТОРИ 24 KV ЗА МОНТИРАНЕ НА ЗАКРИТО, ФИКСИРАН МОНТАЖ С ТЕХНИЧЕСКИ ХАРАКТЕРИСТИКИ В ТАБЛИЦА 2

- ***Технически данни за триполюсни вакуумни прекъсвачи, 24 kV, 1250/5/5 A, за монтиране на закрито, фиксирани:***

Наименование на материала		Токов измервателен трансформатор 24 kV, 1250/5/5 A за монтиране на закрито
№	**Параметър**	**Гарантирано предложение**
1.	Тип/референтен номер съгласно каталога на производителя	4MA74
2.	Производител	Siemens AG

- ***Технически данни за триполюсни вакуумни прекъсвачи, 24 kV, 400/5/5 A, за монтиране на закрито, фиксирани:***

Наименование на материала		Токов измервателен трансформатор 24 kV, 400/5/5 А за монтиране на закрито
№	Параметър	Гарантирано предложение
1.	Тип/референтен номер съгласно каталога на производителя	4MA74
2.	Производител	Siemens AG

- ***Изискуема документация, която се предоставя от Участника при подаване на офертата на хартиен носител за всяка обособена позиция:***

№	Наименование на документацията	Предоставени документи
1.	Точно обозначение на типа на токовите измервателни трансформатори, производителя и страната на произход и последно издание на каталога на производителя	**4MA74 Siemens AG-АЛЧЕ Турция Документ 1**
2.	Удостоверение за одобряване на типа на токовите измервателни трансформатори, издадено по реда и при условията на Закона за измерванията	**Документ 2**
3.	Протоколи от типови изпитвания на токовите измервателни трансформатори на английски или български език, проведени от независима изпитателна лаборатория с приложени резултати от изпитванията, представени при доставка	**Документ 3**
4.	Сертификат/акредитация на независимата изпитателна лаборатория, провела типовите изпитвания – заверено копие	**Документ 4**
5.	Декларация от Участника, че предложеното оборудване в процедурата отговаря на минималните технически изисквания на Възложителя, посочени в таблица 2	**Документ 5**

В) НАПРЕЖЕНОВИ ТРАНСФОРМАТОРИ 24 KV, ЕДНОПОЛЮСЕН, С ДВЕ ВТОРИЧНИ НАМОТКИ, ЗА МОНТИРАНЕ НА ЗАКРИТО С ТЕХНИЧЕСКИ ХАРАКТЕРИСТИКИ В ТАБЛИЦА 3

- ***Технически данни:***

Наименование на материала		Напреженов измервателен трансформатор 24 kV, еднополюсен, с две вторични намотки, за монтиране на закрито
№	Параметър	Гарантирано предложение
1.	Тип/референтен номер съгласно каталога на производителя	4MR14
2.	Производител	Siemens AG

- ***Изискуема документация, която се предоставя от Участника при подаване на офертата на хартиен носител за всяка обособена позиция:***

№	Наименование на документацията	Предоставени документи
1.	Точно обозначение на типа на напреженовия трансформатор (НИТ), производителя и страна на произход и последно издание на каталога на производителя	4MR14 **Siemens AG-АЛЧЕ Турция Документ 1**
2.	Удостоверение за одобряване на типа на НИТ, издадено по реда и при условията на Закона за измерванията	**Документ 2**
3.	Протокол от първоначална метрологична проверка, проведена от оправомощена лаборатория, съгласно действащото в Република България законодателство в областта на измерванията (представя се при доставка за всеки НИТ)	**Документ 3**
4.	Сертификат/акредитация на независимата изпитателна лаборатория, провела типовите изпитвания – заверено копие	**Документ 4**
5.	Декларация от Участника, че предложеното оборудване в процедурата отговаря на минималните технически изисквания на Възложителя, посочени в таблица 3	**Документ 5**

Г) ТРИПОЛЮСНИ ВАКУУМНИ ПРЕКЪСВАЧИ, 12 KV, ЗА МОНТИРАНЕ НА ЗАКРИТО, ФИКСИРАН МОНТАЖ С ТЕХНИЧЕСКИ ХАРАКТЕРИСТИКИ В ТАБЛИЦА 4

- ***Технически данни за триполюсни вакуумни прекъсвачи, 12 kV, 1250 A, за монтиране на закрито, фиксирани:***

Наименование на материала		Триполюсен вакуумен прекъсвач, 12 kV/1250 A/20 kA, за монтиране на закрито, фиксиран
№	**Технически параметър**	**Гарантирано предложение**
1.	Тип/референтен номер съгласно каталога на производителя	**НЕ Е ПРИЛОЖИМО**
2.	Производител	**НЕ Е ПРИЛОЖИМО**

- ***Технически данни за триполюсни вакуумни прекъсвачи, 12 kV, 630 A, за монтиране на закрито, фиксирани:***

Наименование на материала		Триполюсен вакуумен прекъсвач, 12 kV/630 A/20 kA, за монтиране на закрито, фиксиран
№	**Технически параметър**	**Гарантирано предложение**
1.	Тип/референтен номер съгласно каталога на производителя	**НЕ Е ПРИЛОЖИМО**
2.	Производител	**НЕ Е ПРИЛОЖИМО**

- ***Изискуема документация, която се предоставя от Участника при подаване на офертата на хартиен носител за всяка обособена позиция:***

№	**Наименование на документацията**	**Предоставени документи**
1.	Техническо описание на прекъсвача, в т.ч. гарантирани параметри и съоръжаване	**НЕ Е ПРИЛОЖИМО**
2.	Протоколи от типови изпитвания на английски или български език, проведени от независима акредитирана изпитвателна лаборатория– заверени копия (и допълнителни изпитвания, ако са проведени), с приложен списък на отделните изпитвания на български език.	**НЕ Е ПРИЛОЖИМО**
3.	Сертификат/акредитация на независимата изпитвателна лаборатория, провела типовите изпитвания – заверено копие	**НЕ Е ПРИЛОЖИМО**
4.	Декларация от Участника, че предложеното оборудване в процедурата отговаря на минималните технически изисквания на Възложителя, посочени в таблица 4	**НЕ Е ПРИЛОЖИМО**

Д) ТОКОВИ ТРАНСФОРМАТОРИ 12 KV ЗА МОНТИРАНЕ НА ЗАКРИТО, ФИКСИРАН МОНТАЖ С ТЕХНИЧЕСКИ ХАРАКТЕРИСТИКИ В ТАБЛИЦА 5

- ***Технически данни за триполюсни вакуумни прекъсвачи, 12 kV, 1250/5/5 A, за монтиране на закрито, фиксирани:***

Наименование на материала		Токов измервателен трансформатор 12 kV, 1250/5/5 A за монтиране на закрито
№	**Параметър**	**Гарантирано предложение**
1.	Тип/референтен номер съгласно каталога на производителя	**НЕ Е ПРИЛОЖИМО**
2.	Производител	**НЕ Е ПРИЛОЖИМО**

- ***Технически данни за триполюсни вакуумни прекъсвачи, 12 kV, 400/5/5 A, за монтиране на закрито, фиксирани:***

Наименование на материала		Токов измервателен трансформатор 12 kV, 400/5/5 A за монтиране на закрито
№	**Параметър**	**Гарантирано предложение**
1.	Тип/референтен номер съгласно каталога на производителя	**НЕ Е ПРИЛОЖИМО**
2.	Производител	**НЕ Е ПРИЛОЖИМО**

- ***Изискуема документация, която се предоставя от Участника при подаване на офертата на хартиен носител за всяка обособена позиция:***

№	Наименование на документацията	Предоставени документи
1.	Точно обозначение на типа на токовите измервателни трансформатори, производителя и страната на произход и последно издание на каталога на производителя	НЕ Е ПРИЛОЖИМО
2.	Удостоверение за одобряване на типа на токовите измервателни трансформатори, издадено по реда и при условията на Закона за измерванията	НЕ Е ПРИЛОЖИМО
3.	Протоколи от типови изпитвания на токовите измервателни трансформатори на английски или български език, проведени от независима изпитателна лаборатория с приложени резултати от изпитванията, представени при доставка	НЕ Е ПРИЛОЖИМО
4.	Сертификат/акредитация на независимата изпитателна лаборатория, провела типовите изпитвания – заверено копие	НЕ Е ПРИЛОЖИМО
5.	Декларация от Участника, че предложеното оборудване в процедурата отговаря на минималните технически изисквания на Възложителя, посочени в таблица 5	НЕ Е ПРИЛОЖИМО

Е) НАПРЕЖЕНОВИ ТРАНСФОРМАТОРИ 12 KV, ЕДНОПОЛЮСЕН, С ДВЕ ВТОРИЧНИ НАМОТКИ, ЗА МОНТИРАНЕ НА ЗАКРИТО С ТЕХНИЧЕСКИ ХАРАКТЕРИСТИКИ В ТАБЛИЦА 6

- ***Технически данни:***

Наименование на материала		Напреженов измервателен трансформатор 12 kV, еднополюсен, с две вторични намотки, за монтиране на закрито
№	Параметър	Гарантирано предложение
1.	Тип/референтен номер съгласно каталога на производителя	НЕ Е ПРИЛОЖИМО
2.	Производител	НЕ Е ПРИЛОЖИМО

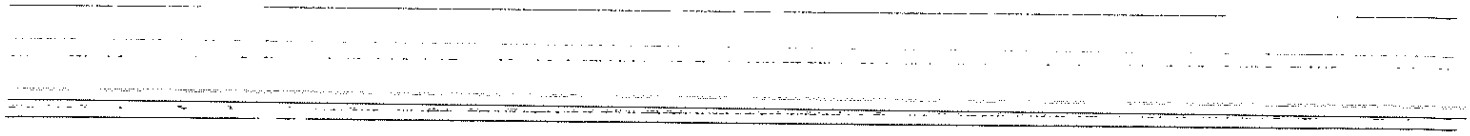
- ***Изискуема документация, която се предоставя от Участника при подаване на офертата на хартиен носител за всяка обособена позиция:***

№	Наименование на документацията	Предоставени документи
1.	Точно обозначение на типа на напреженовия трансформатор (НИТ), производителя и страна на произход и последно издание на каталога на производителя	НЕ Е ПРИЛОЖИМО
2.	Удостоверение за одобряване на типа на НИТ, издадено по реда и при условията на Закона за измерванията	НЕ Е ПРИЛОЖИМО
3.	Протокол от първоначална метрологична проверка, проведена от оправомощена лаборатория, съгласно действащото в Република България законодателство в областта на измерванията (представя се при доставка за всеки НИТ)	НЕ Е ПРИЛОЖИМО
4.	Сертификат/акредитация на независимата изпитателна лаборатория, провела типовите изпитвания – заверено копие	НЕ Е ПРИЛОЖИМО
5.	Декларация от Участника, че предложеното оборудване в процедурата отговаря на минималните технически изисквания на Възложителя, посочени в таблица 6	НЕ Е ПРИЛОЖИМО

Ж) ПОСОЧНА ЦИФРОВА ЗАЩИТА ЗА ВЪЗДУШНИ И КАБЕЛНИ ЕЛЕКТРОПРОВОДНИ ЛИНИИ СР. Н.С ТЕХНИЧЕСКИ ХАРАКТЕРИСТИКИ В ТАБЛИЦА 7

- ***Технически данни:***

Название на материала		Посочна цифрова защита за въздушни и кабелни електропроводни линии Ср. Н
№	Технически параметър	Гарантирано предложение
1.	Тип/референтен номер съгласно каталога на производителя	7SJ66



2.	Производител	Siemens AG - Германия

- ***Изискуема документация, която се предоставя от Участника при подаване на офертата на хартиен носител за всяка обособена позиция:***

№	Наименование на документацията	Предоставени документи
1.	Техническо описание, включващо гарантирани параметри, съгласно общите изисквания към обекта на поръчката - оригинал с подпис и печат на участника	Документ 1
2.	Каталог на предлаганото оборудване по поръчката	Документ 2
3.	Декларация от Участника, че предложеното оборудване в процедурата отговаря на минималните технически изисквания на Възложителя, посочени в таблица 7	Документ 3

3). ИЗИСКВАНИЯ КЪМ КОМУНИКАЦИЯ НА ЦЗ И КОНТРОЛЕРИ С RTU

- ***Изискуема документация към комуникация на ЦЗ и контролери с RTU, които се предоставят от Участника при подаване на офертата на хартиен носител:***

№	Наименование на документацията	Предоставени документи
1.	Декларация от Участника, че предложеното оборудване в процедурата отговаря на минималните технически изисквания на Възложителя, посочени в таблица 8	Документ 1

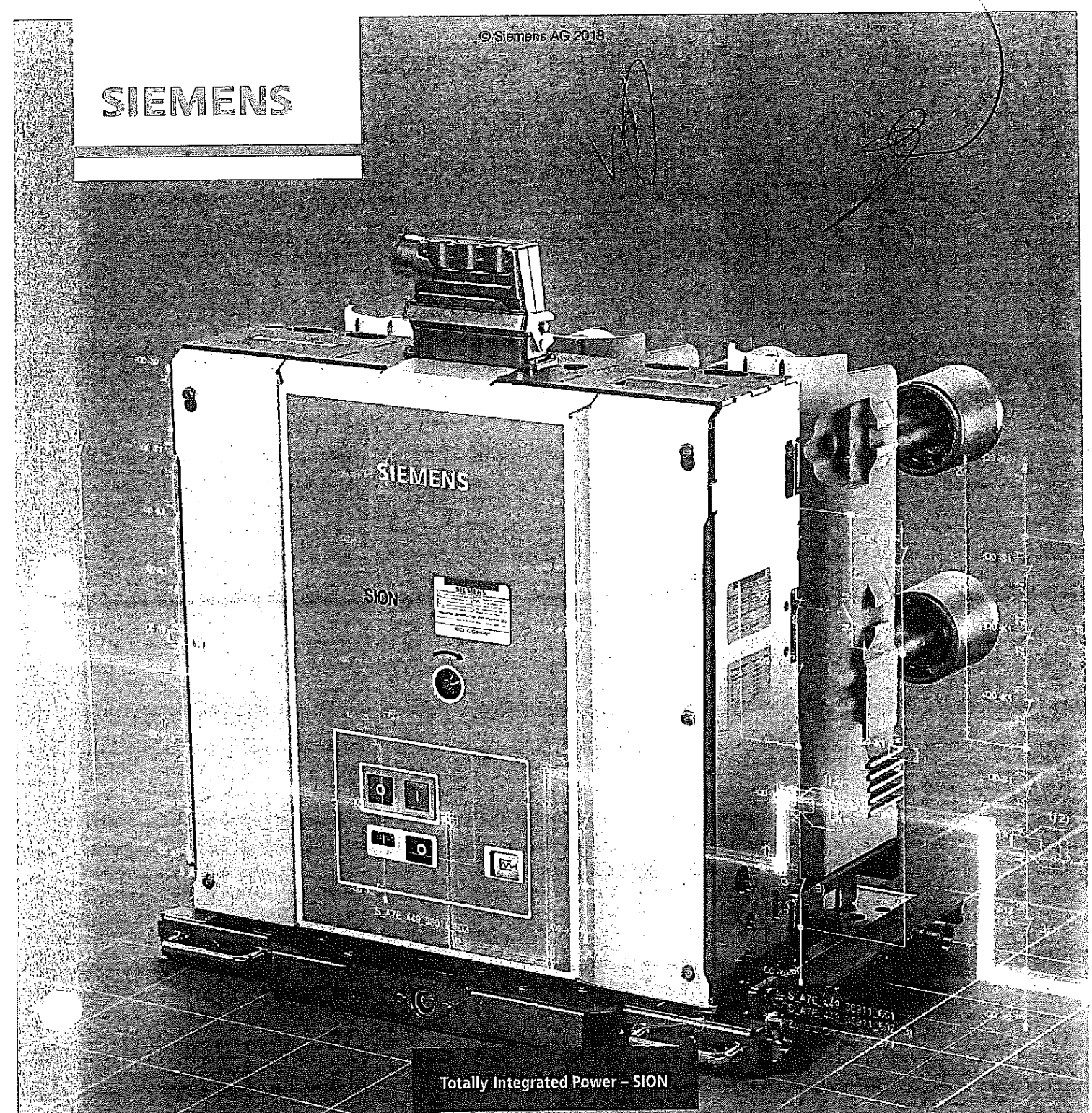
Дата **14.12.2018** г.

ПОДПИС и ПЕ

На основание чл.36а ал.3 от ЗОП

ТРИПОЛЮСНИ ВАКУУМНИ ПРЕКЪСВАЧИ, 24 KV

SIEMENS



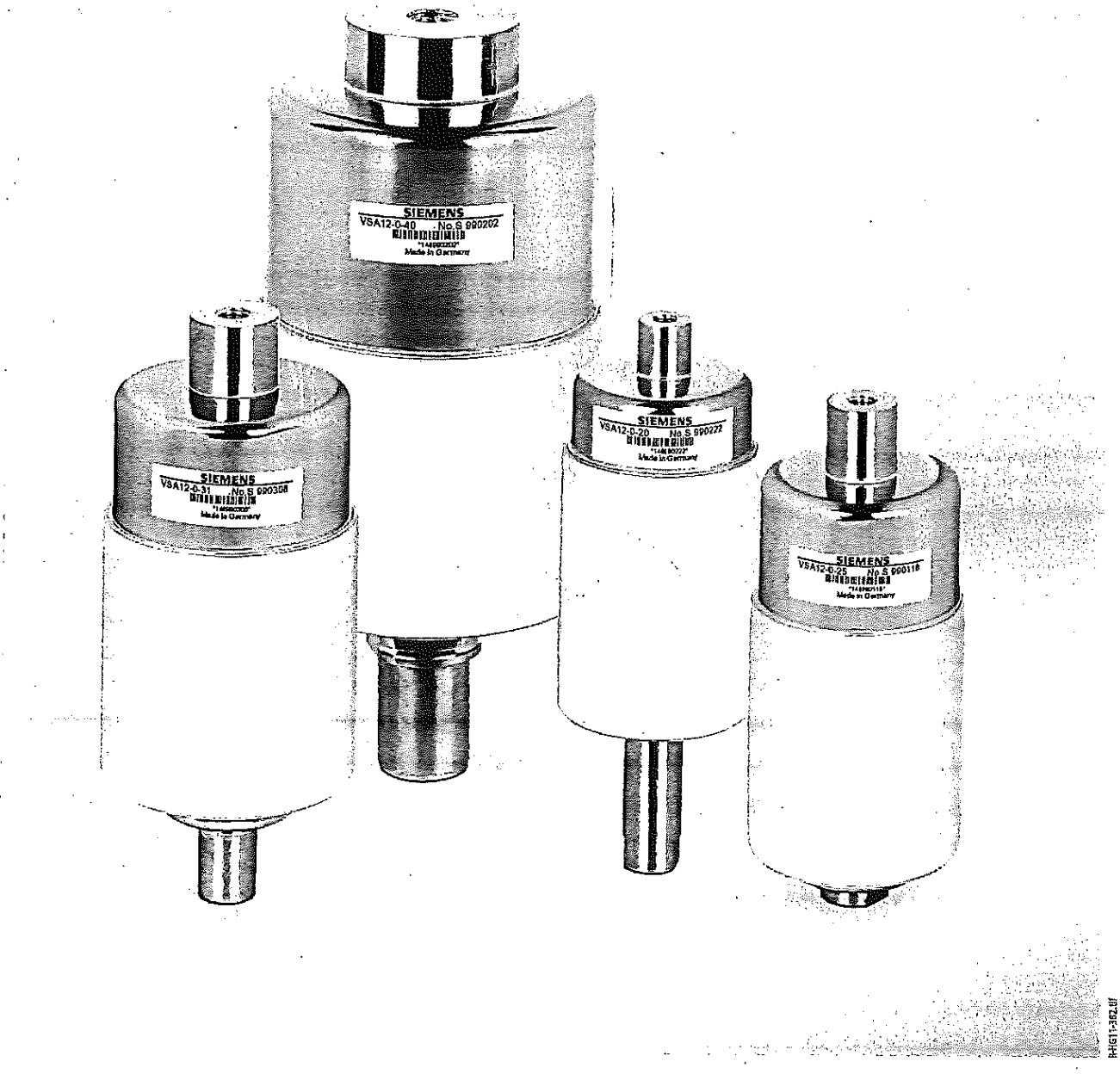
Totally Integrated Power – SION

SION Vacuum Circuit Breakers 3AE5 and 3AE1

Medium-Voltage Equipment

Catalog HG 11.02 · Edition 2018

siemens.com/SION



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SION Vacuum Circuit Breakers 3AE5 and 3AE1

Medium-Voltage Equipment
Catalog HG 11.02 · 2018

Supersedes:
Catalog HG 11.02 · 2017

TYPE APPROVED PRODUCT
DNV·GL
DNVGL.COM/AF

MANAGEMENT SYSTEM CERTIFICATION
DNV·GL
ISO 9001 = ISO 14001
OHSAS 18001

The products and systems listed in this catalog are manufactured and distributed using a certified management system (according to ISO 9001, ISO 14001 and BS OHSAS 18001).

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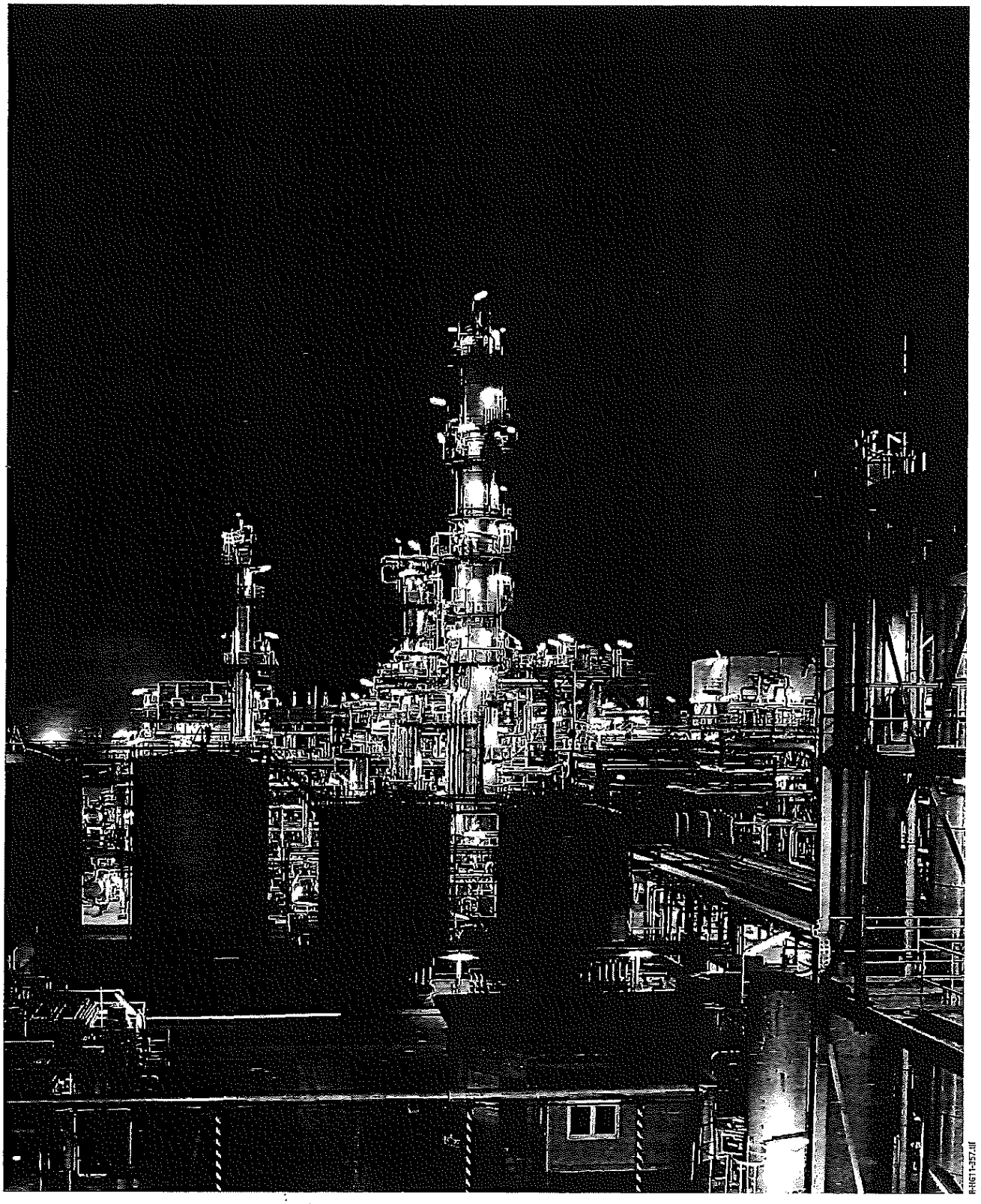

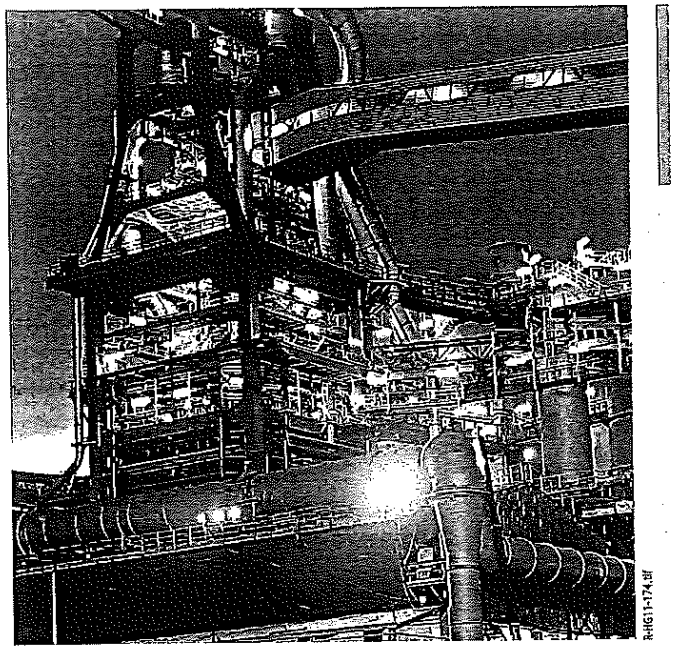

Industrial application: Refinery

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1

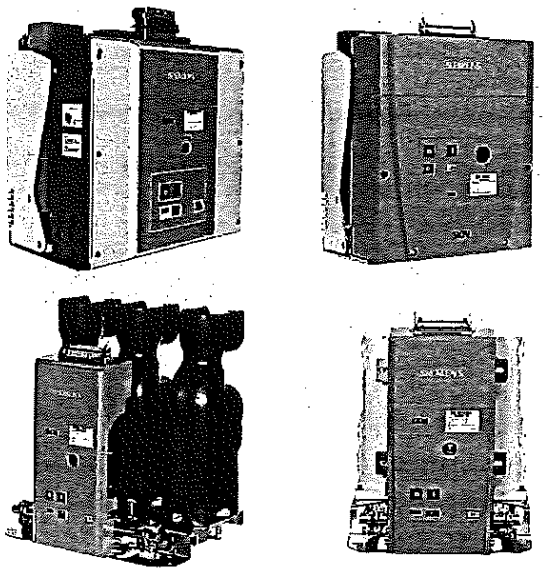
SION Vacuum Circuit Breaker 3AE5 and 3AE1 from 7.2 kV to 24 kV – The Modular Devices

1

SION vacuum circuit breakers control all switching operations in medium-voltage distribution systems and are suitable for installation in all established and new air-insulated medium-voltage switchgear as well as for retrofitting existing switchgear.
They are used for operation, for example, of overhead lines, cables, transformers, capacitors and motors.
The optional installation accessories enable easy integration into switchgear panels, and, maximally equipped as a withdrawable module with an earthing switch, form almost the complete circuit breaker compartment inside the switchgear.

Our comprehensive range of circuit breakers offers a wide selection of pole-center distances and widths across flats as well as various equipment options for voltage levels from 7.2 kV to 24 kV. The withdrawable part, contact arms, contacts and bushings enable easy integration in all customary medium-voltage switchgear types. Identical dimensions and connection dimensions across several voltage levels reduce planning costs and the variety of panel versions. High reliability and availability are a matter of course, as are 10,000 maintenance-free operating cycles.

SION vacuum circuit breaker for fixed mounting



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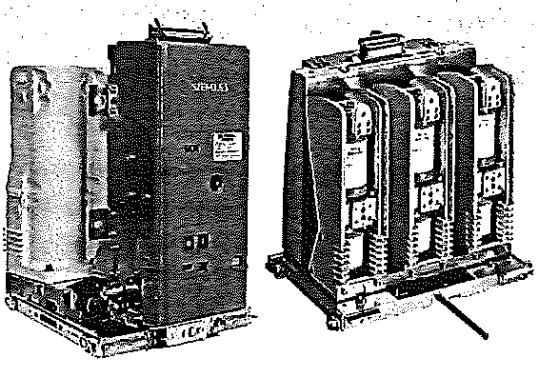
Thanks to a range of equipment options, SION vacuum circuit breakers can be precisely tailored to your requirements. This switching device can be mounted on a withdrawable part. Furthermore, mountable contact arms, contacts and bushings allow easy integration in your switchgear.

SION vacuum circuit breaker on withdrawable part



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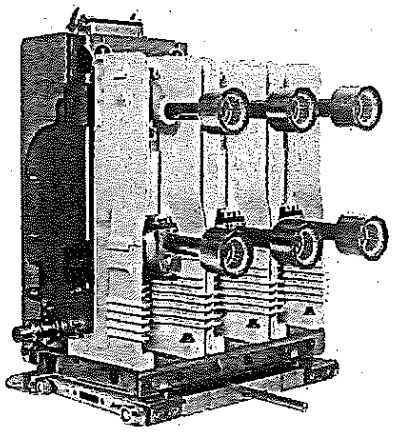
The circuit breaker mounted on a withdrawable part can be supplied both with and without contact arms and contacts.

SION vacuum circuit breaker on withdrawable part – with contacts



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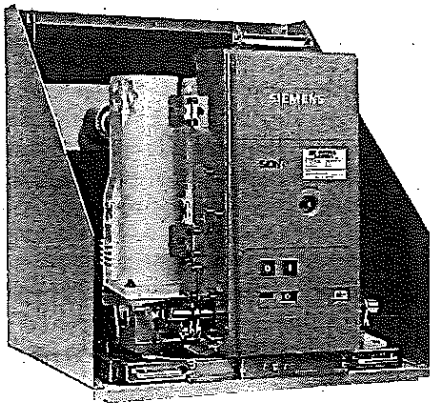
The SION vacuum circuit breakers can be supplied with contact arms and contacts.

Withdrawable module with 3AE5 vacuum circuit breaker



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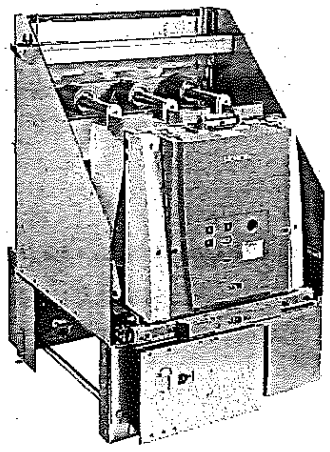
The withdrawable module contains all components required for the circuit breaker compartment of a switchgear panel. It consists of the circuit breaker mounted on a withdrawable part, with contact arms, fitted in a cartridge with side and rear walls. The withdrawable module is equipped with bushings, fixed contacts, shutters and the shutter mechanism. The side and rear walls form the tested connection compartment.

Withdrawable module with earthing switch



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The withdrawable module is also available with an earthing switch. It contains all components required for the circuit breaker compartment of a switchgear panel. It consists of the circuit breaker mounted on a withdrawable part, with contact arms, fitted in a cartridge with side and rear walls. The withdrawable module is equipped with bushings, fixed contacts, shutters and the shutter mechanism, as well as with a make-proof earthing switch. The side and rear walls form the tested connection compartment.

1

Switching medium

Proven and fully developed for more than 40 years, vacuum switching technology is the principal arc-quenching element used in vacuum interrupters.

Pole assemblies

The pole assemblies consist of vacuum interrupters and pole shells. The vacuum interrupters are air-insulated and freely accessible. The pole assemblies are fixed on the mechanism mounting plate and supported by means of the pole shell (6). The vacuum interrupter (5) is mounted rigidly to the upper interrupter support. The lower part of the interrupter is guided into the lower interrupter support, allowing axial movement. The pole shell (6) absorbs external forces resulting from switching operations and the contact pressure.

Operating mechanism

The whole operating mechanism with motor (13), releases (11), indicators and actuating devices is mounted on the mechanism mounting plate (9). This compact design enables very fast operating times.

The circuit breaker operating mechanism is a stored-energy spring mechanism. The force is transmitted from the operating mechanism to the pole assemblies via operating levers. The closing spring (15) can be charged either electrically or manually, and latches in automatically when charging is complete. The closing spring (15) acts as a stored-energy mechanism.

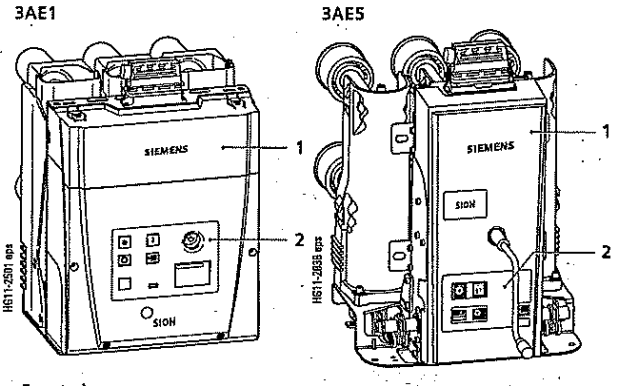
To close the breaker, the closing spring (15) can be unlatched either mechanically at the device (ON pushbutton), or electrically by remote control. The closing spring (15) charges the opening and/or contact-pressure springs (17) as the breaker closes. The now discharged closing spring (15) will be charged again automatically by the motor (13).

In this way, the stored-energy mechanism stores the OPEN – CLOSE – OPEN operating sequence that is required for an auto-reclosing operation on the system side. All stored-energy mechanisms perform the switching duties of synchronizing, rapid load transfer, and auto-reclosing.

Trip-free mechanism

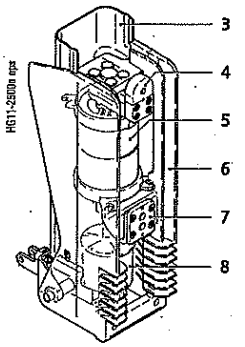
The circuit breakers have a trip-free mechanism. In the event of an opening command being given after a closing operation has been initiated, the moving contacts return to the open position and remain there even if the closing command is sustained. However, the vacuum circuit breaker contacts are momentarily in the closed position.

For charging the closing spring (15), the motor (13) operates in short-time duty. Therefore the voltage and power consumption might differ from the data of the motor rating plate.



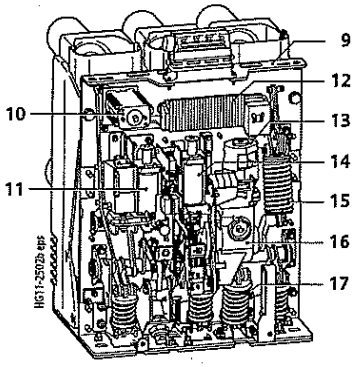
Front view

1 Cover of low-voltage interface
2 Central control board



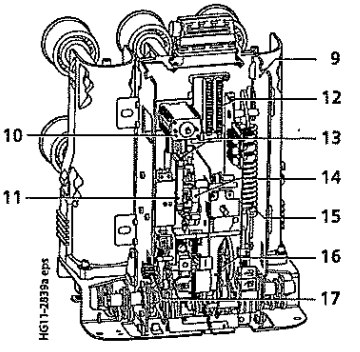
Pole structure

3 Insulating shell to the operating mechanism
4 Upper connection
5 Vacuum interrupter
6 Pole shell
7 Lower connection
8 Insulator



Operating mechanism 3AE1 without cover

9 Mechanism mounting plate
10 Auxiliary switch
11 1st release
12 Terminal strip
13 Motor
14 Closing solenoid
15 Closing spring
16 Gear
17 Opening spring



Operating mechanism 3AE5 without cover

9 Mechanism mounting plate
10 Auxiliary switch
11 1st release
12 Terminal strip
13 Motor
14 Closing solenoid
15 Closing spring
16 Gear
17 Opening spring

Releases

A release is a device that transfers electrical commands from an external source, such as a control room, to the latching mechanism of the vacuum circuit breaker so that it can be opened or closed. The releases are designed for short-time duty up to 1 minute and are reset internally.
The various types of releases available are described in detail below:

Closing solenoid

The closing solenoid unlatches the charged closing spring of the vacuum circuit breaker, closing it by electrical means.

Shunt releases

Shunt releases are used for automatic tripping of the circuit breaker by suitable protection relays and for deliberate tripping by electrical means. They are intended for connection to an external power supply (DC or AC voltage).

Current-transformer-operated releases

Current-transformer-operated releases consist of a stored energy mechanism, an unlatching mechanism and an electromagnet system. They are used when there is no external source of auxiliary power (e.g. a battery). Tripping is effected by means of a protection relay (e.g. overcurrent time protection) acting on the current-transformer-operated release.

Undervoltage releases

Undervoltage releases consist of a stored-energy mechanism, an unlatching mechanism and an electromagnet system that is permanently connected to the secondary or auxiliary voltage while the circuit breaker is closed. If the voltage falls below a predetermined value, unlatching of the release is enabled and the circuit breaker is opened via the stored-energy mechanism.

A maximum of two releases can be fitted as described on page 36. The consumption data of the releases is listed on page 87/88.

Closing and anti-pumping

In the standard version, the circuit breakers can be closed electrically via remote. In addition, they can be mechanically closed locally by direct unlatching of the closing spring. If constant electrical signals for CLOSE and OPEN commands are present at the circuit breaker at the same time, the circuit breaker will carry out an OPEN-CLOSE-OPEN or a CLOSE-OPEN operating sequence. A new CLOSE command is given only following a brief interruption of the closing signal. This prevents continuous closing and opening (= "pumping") operations.

Closing spring charged indication

The circuit breakers have a mechanically operated spring charged indicator. The charging status of the closing spring can also be queried electrically by means of an integrated position switch.

Circuit breaker tripping signal

During electrical opening, the NO contact S6 makes brief contact. This is often used to operate a hazard warning system which should respond to automatic tripping of the circuit breaker. In case of local control, the NO contact S6 does not close.

The corresponding circuit diagrams can be found in the associated circuit manuals. See also page 76.

Interlocking

Mechanical interlocking

At the interface of the mechanical interlocking of the circuit breaker, sensors on the switchgear side can check the switch position and prevent the associated disconnector from being operated while the circuit breaker is closed. The system also prevents the circuit breaker from being closed while the associated disconnector is in the fault position.

Circuit breakers mounted on withdrawable parts are mechanically interlocked so that the handle for racking the withdrawable part can only be inserted while the breaker is in the OPEN position. The lock of the withdrawable part can be released by operating the pushing handles and only while the withdrawable part is in the disconnected position.

If the circuit breaker on the withdrawable part is in an intermediate position (neither in the service nor in the disconnected position), operation is prevented by the mechanical interlocking.

An optional key-operated interlock enables mechanical closing only in combination with the operated lock.

Electrical interlocking

The auxiliary and signaling contacts which query the switch position of the circuit breaker or the position of the withdrawable part can be integrated in the switchgear interlocking concept. Furthermore, mechanical closing can also be prevented by means of an optional, electrical closing lockout. in order to prevent impermissible switching sequences.

Low-voltage interface

The removable cover of the SION 3AE1 and 3AE5 vacuum circuit breakers enables easy access to the low-voltage interface. All customer-side control and signaling options are concentrated here.

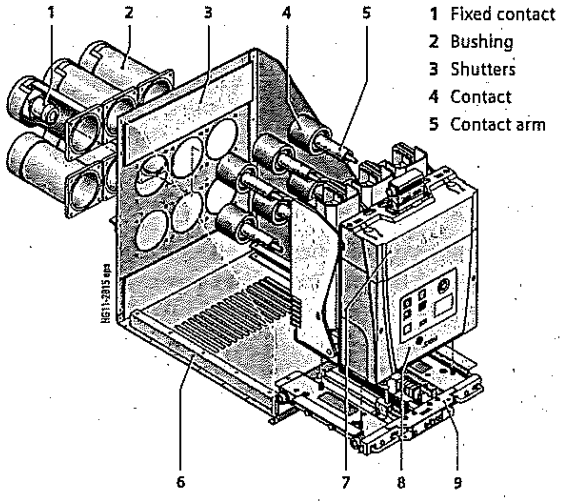
1

Withdrawable module

The withdrawable module contains all components required for the circuit breaker compartment of a switchgear panel. It consists of the circuit breaker mounted on a withdrawable part, with contact arms, fitted in a cartridge with side and rear walls. The withdrawable module is equipped with bushings, fixed contacts, shutters and the shutter mechanism. The side and rear walls form the tested connection compartment.

The circuit breaker on the withdrawable part is racked into the cartridge with the handle by rotating the spindle. The shutter mechanism is controlled by lateral gates, and the shutters are opened for contacting. Signals for the service and disconnected positions are transmitted to the module connector at the low-voltage interface of the vacuum circuit breaker via the position switches of the withdrawable part.

Withdrawable module 3AE1

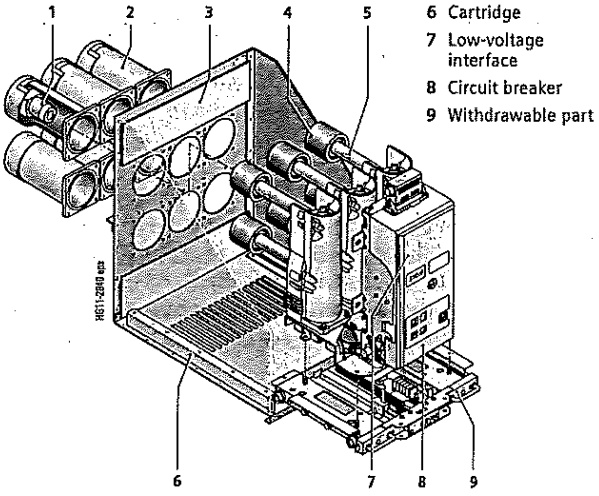


Withdrawable module with make-proof earthing switch

The make-proof earthing switch at the cartridge has a defined making capacity up to the values stated on the circuit breaker rating plate. It features a compact design with spring-operated mechanism and a switching angle of 90°, low torques for closing and opening, as well as low maintenance.

The make-proof earthing switch has been tested in the withdrawable module and complies with the relevant standards for the switchgear panels.

Withdrawable module 3AE5



1

Standards

The circuit breakers conform to the following standards:

- IEC 62271-1
- IEC 62271-100

All circuit breakers fulfill the endurance classes
C2, E2, M2 and S1 according to IEC 62271-100, as well as the shortest rated operating sequence O - 0.3s - CO - 15s - CO.

3AE5 circuit breakers up to 12 kV / 31.5 kA / 1250 A comply with
the DNVGL-CG-0339 classification for marine applications.

The withdrawable modules have been tested according to

- IEC 62271-200, 62271-1 and 62271-102 regarding
  - Dielectric strength
  - Temperature rise
  - Switching capacity.

For class C2, all circuit breakers comply with the following values acc. to IEC 62271-100.

	Line	Cable	Capacitors	Back-to-back capacitor bank	
Rated voltage U_r kV, r.m.s.	Rated line-charging breaking current I_1 A, r.m.s.	Rated cable-charging breaking current I_c A, r.m.s.	Rated single-capacitor-bank breaking current I_{sb} A, r.m.s.	Rated back-to-back-capacitor-bank breaking current I_{bb} A, r.m.s.	Frequency of the inrush making current f_{bi} Hz
7.2	10	10	400	400	4250
12	10	25	400	400	4250
17.5	10	31.5	400	400	4250
24	10	31.5	400	400	4250

Rated back-to-back-capacitor-bank inrush making current – see chapter 3: Technical data

Maintenance-free design

The circuit breakers are maintenance-free:

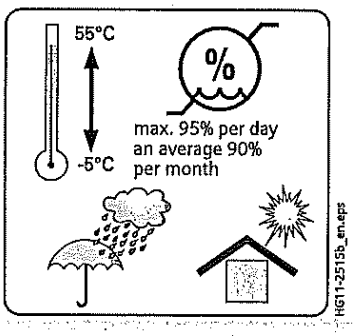
- Under normal ambient conditions according to IEC 62271-1
- Up to 10,000 operating cycles maintenance-free
  - no regreasing
  - no readjusting
- Up to 30,000 operating cycles with maintenance work for the 3AE5

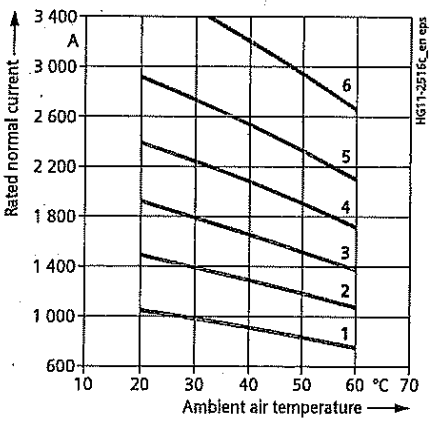
The ratings are independent within their tolerances of the
switching frequency or standing times without switching.

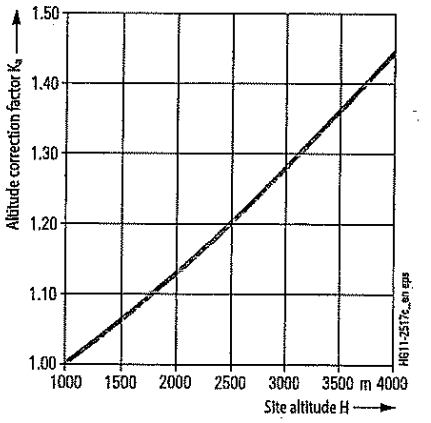
Interlocking

Vacuum circuit breaker	Disconnected position	Racking	Service position	Switching state of vacuum circuit breaker	Interlocking of vacuum circuit breaker against closing (optionally with key-operated interlock)	Interlocking of withdrawable part in the switchgear panel (latching of locking handles) in disconnected position	Interlocking of racking the withdrawable part (between disconnected, test and service position)	Switching state of the earthing switch	Interlocking of the earthing switch against closing
Fixed-mounted			■	OPEN	Interlockable				
			■	CLOSED					
Disconnecting	■			CLOSED			Active		
on withdrawable part and	■			OPEN					
in withdrawable module		■		OPEN	Active	Active			
			■	CLOSED		Active	Active		
Disconnecting	■			CLOSED			Active	OPEN	
on withdrawable part, in	■			OPEN				OPEN	
withdrawable module and		■		OPEN	Active	Active		OPEN	Active
with earthing switch			■	CLOSED		Active	Active	OPEN	Active
Grounding	■			OPEN or CLOSED				OPEN	
on withdrawable part, in withdrawable module and with earthing switch	■			OPEN or CLOSED			Active	OPEN	

1







Ambient conditions

The circuit breakers are designed for normal operating conditions as defined in IEC 62271-100. Condensation can occasionally occur under the ambient conditions shown opposite.

The circuit breakers are suitable for use in the following climatic classes according to IEC 60721, Part 3-3:

Climatic ambient conditions:	Class 3K4 [1]
Biological ambient conditions:	Class 3B1
Mechanical ambient conditions:	Class 3M2
Chemically-active substances:	Class 3CS [3]
Mechanically-active substances:	Class 3S2 [2]

1) Lower temperature limit: -5 °C (with order code A40 down to -25 °C)
2) Restriction: Clean insulation parts
3) Without appearance of saline fog and simultaneous condensation

Current carrying capacity

The rated normal currents specified in the diagram have been defined according to IEC 62271-100 for an ambient air temperature of +40 °C and apply to open switchgear.

For enclosed switchgear, the data of the switchgear manufacturer applies.

At ambient air temperatures below +40 °C, higher normal currents can be carried (see diagram):

Characteristics curve **1** = Rated normal current 800 A
Characteristics curve **2** = Rated normal current 1250 A
Characteristics curve **3** = Rated normal current 1600 A
Characteristics curve **4** = Rated normal current 2000 A
Characteristics curve **5** = Rated normal current 2500 A
Characteristics curve **6** = Rated normal current 3150 A

Dielectric strength

The dielectric strength of air insulation decreases with increasing altitude due to lower air density. According to IEC 62271-1, the rated lightning impulse withstand voltage and the rated short-duration power-frequency withstand voltage specified in chapter "Technical data" apply to a site altitude of 1000 m above sea level. For altitudes above 1000 m, the insulation level must be corrected according to the diagram shown opposite.

The characteristics curve shown applies to both rated withstand voltages.

When selecting the devices, the following applies:

$U \geq U_0 \times K_a$

U Rated withstand voltage under reference atmosphere
U_0 Rated withstand voltage requested for the installation location
K_a Altitude correction factor according to the diagram shown opposite

Example

For a requested rated lightning impulse voltage of 75 kV at an altitude of 2500 m, an insulation level of at least 90 kV under reference atmosphere is required:

90 kV ≥ 75 kV x 1.2

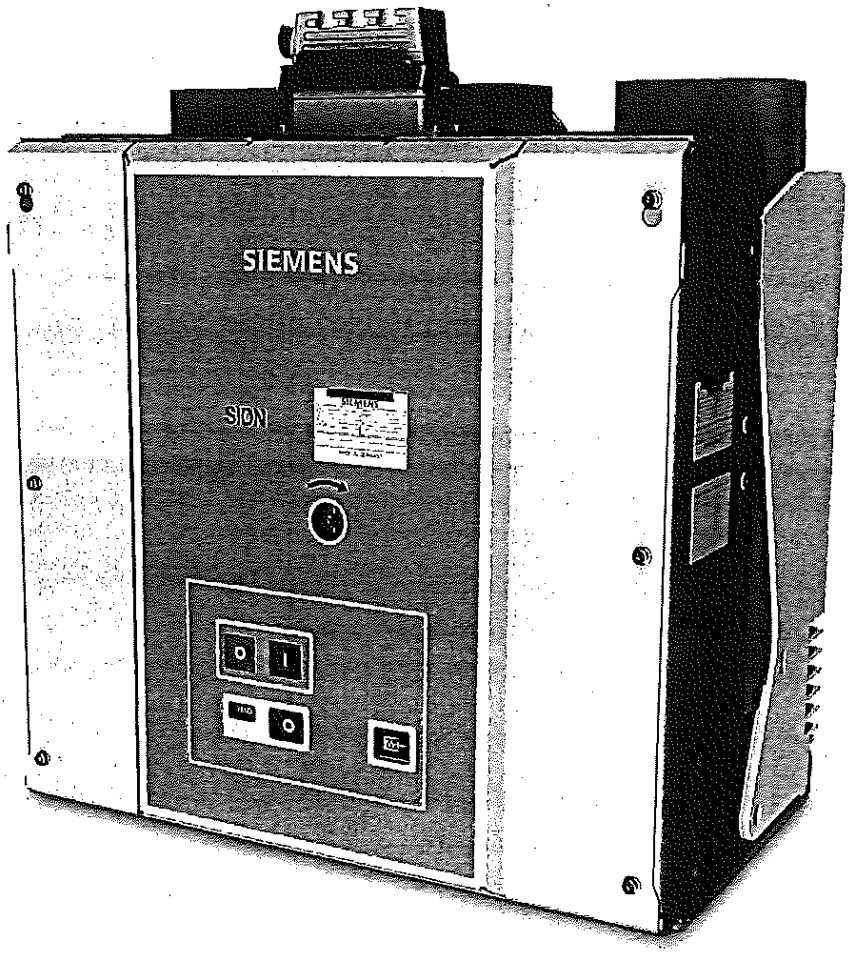
Equipment

Features	Minimum equipment	Alternative equipment	Remarks
Operating mechanism	Electrical operating mechanism	None	Also for manual operation
Closing	Closing solenoid and mechanical manual closing	None	–
1st release	Shunt release	Undervoltage release, c.-t.-operated release	For SION 3AE5, only shunt releases are possible
2nd release	None	Shunt release, undervoltage release, c.-t.-operated release	Combination of 2 undervoltage releases or 2 c.t.-operated releases is not possible for 3AE1
3rd release	None	Shunt release, c.t.-operated release	Only in combination with wide operating mechanism housing; combination of 2 undervoltage releases is not possible for 3AE5.
Varistor circuit	Standard for ≥ 60 V DC	None	For limiting switching overvoltages
Auxiliary switch	6 NO + 6 NC	12 NO + 12 NC	–
Plug connection	27-pole terminal strip f. SION 3AE1 20-pole plug connector f. SION 3AE5	24-pole plug, 64-pole plug	12 NO + 12 NC not available with 24-pole plug
Anti-pumping	Available	None	–
Circuit breaker tripping signal	None	Possible	–
Operation cycles counter	Available	None	–
Position switches for withdrawable part	5 momentary-contact position switches per position	None	–
Interlocking	Mechanical interlocking available at the withdrawable module	Mechanical interlocking for circuit breaker Electrical closing lock-out for 3AE5 Key-operated interlocking	Required for withdrawable part
Installation type	Fixed-mounted	Withdrawable part with/without contact arms and contact, fixed contacts and bushings, withdrawable module with/ without make-proof earthing switch	–

Product range overview: Circuit breaker without installation accessories

Type	Rated voltage	Rated short-circuit breaking current	Rated normal current	Pole-center distance (in mm)									
				150			160			210			275
				Width across flats (in mm)									
	kV	kA	A	205	275	310	205	275	310	205	275	310	310
3AE50	7.2	16/20/25/31.5	800/1250	■	■	■	■	■	■	■	■	■	
3AE50	7.2	16/20/25/31.5	1600									■	
3AE50	7.2	25/31.5	2000/2500									■	
3AE10	7.2	40	1250/2000 2500/3150									■	
3AE51	12	16/20/25/31.5	800/1250	■	■	■	■	■	■	■	■	■	
3AE51	12	16/20/25/31.5	1600									■	
3AE51	12	20/25/31.5	2000/2500									■	■
3AE11	12	40	1250/2000 2500/3150									■	■
3AE52	17.5	16/25/31.5	800/1250	■	■	■	■	■	■	■	■	■	
3EA52	17.5	16/25/31.5	1600			■			■			■	■
3AE52	17.5	25/31.5	2000/2500									■	■
3AE12	17.5	40	1250/2000/ 2500/3150									■	■
3AE13/3AE53	24	16/20/25	800/1250									■	■
3AE13	24	16	800/1250/2000									■	■
		20/25	2000/2500									■	■

Note: The circuit breaker is available with various installation accessories. These versions can be configured from page 18 onwards.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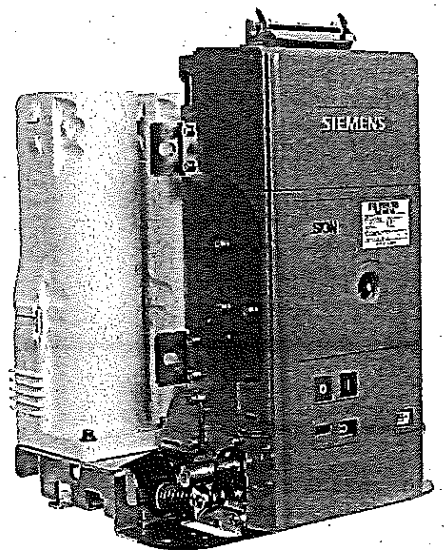
SION



3AE5 vacuum circuit breaker as fixed-mounted version

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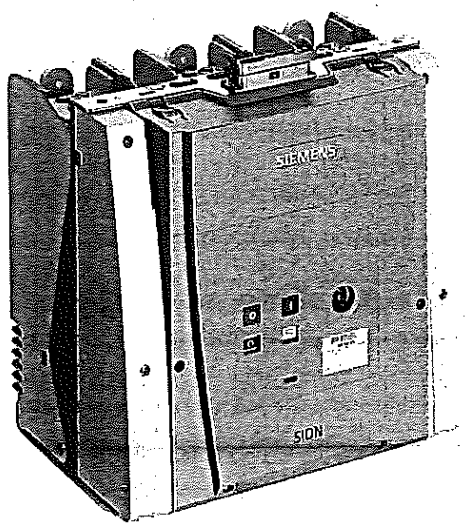

3AE1 vacuum circuit breaker as fixed-mounted version

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Contents | Page

2

Article number structure

The circuit breakers consist of a primary and a secondary part. The primary part covers the main electrical data of the circuit breaker poles. The secondary part covers the auxiliary devices which are necessary for operating and controlling the vacuum circuit breaker. The relevant data makes up the 16-digit article number.

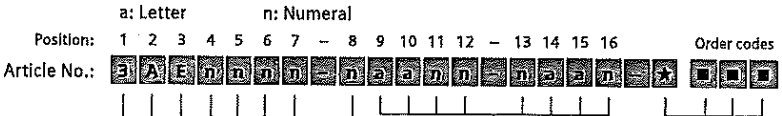
Order codes

Individual equipment versions, marked with **9** or **Z** in the 9th to 16th position, are explained in more detail by a 3-digit order code. Several order codes can be added to the article number in succession and in any sequence.

Special versions (★)

In case of special versions, "-Z" is added to the article number and a descriptive order code follows.
If several special versions are required, the suffix "-Z" is listed only once. If a requested special version is not in the catalog and can therefore not be ordered via order code, it has to be identified with **Y 9 9** after consultation with us. The consultation must take place directly between your sales partner and the order processing department at Siemens. Special wiring designs can also be ordered with **B99**.

2



	Primary part
1st position	Superior group Switching devices
2nd position	Main group Circuit breaker
3rd position	Subgroup Circuit breaker type series
4th position	Circuit breaker version
5th position	Rated voltage from 7.2 kV to 24 kV
6th position	Pole-center distance/Width across flats
7th position	Rated short-circuit breaking current from 16 kA to 40 kA
8th position	Rated normal current from 800 A to 3150 A
	Secondary part
9th to 16th position	Secondary equipment, operating mechanism, releases, operating voltages and other auxiliary equipment
	Order codes Groups of 3 after the article number Format: a n a
	Special versions (★) Initiated with "-Z" Groups of 3 after the article number Format: a n n

Configuration example

To help you select the correct article number for the circuit breaker type that you require, you will find two configuration examples below. Two complete circuit breakers have been configured as examples.

On the foldout page, you can enter the Article No. determined for your circuit breaker. Based on the Article No., you can request an offer from your Siemens partner.

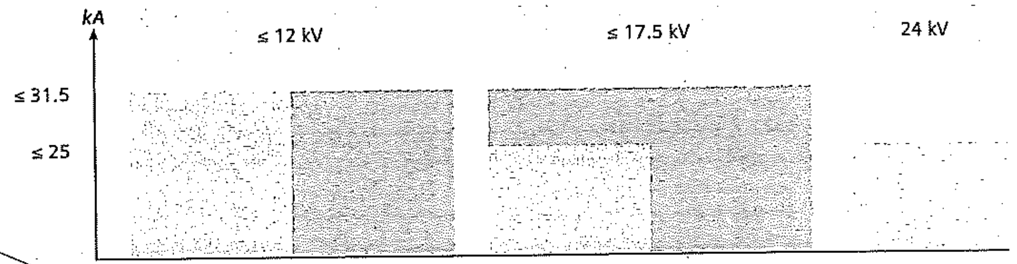
Configuration example 1: SION 3AE5 withdrawable module (vacuum circuit breaker on withdrawable part in cartridge)

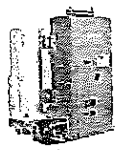
Position: 1 2 3 4 5 6 7 – 8 9 10 11 12 – 13 14 15 16 Order codes
Article No.: 3 A E 5 ■ ■ ■ – ■ ■ ■ ■ ■ – ■ ■ ■ ■ – ★ ■ ■ ■

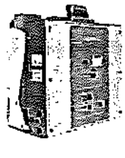
Configuration example	Code
SION vacuum circuit breaker	3 A E 5
Rated voltage U_r = 12 kV, 50/60 Hz	
Rated lightning impulse voltage U_p = 75 kV	
Rated short-circuit breaking current I_{SC} = 25 kA	
Rated normal current I_r = 1250 A	
Pole-center distance = 150 mm	
Width across flats = 310 mm	1 2 4 – 2
1st shunt release (only one shunt release)	A
Operating voltage of the closing solenoid 48 V DC	C
Operating voltage of the 1st release 32 V DC	9 (order code L 1 B)
Without 2nd release	0 –
Circuit breaker on withdrawable part, with cartridge, contact arms, contacts, fixed contacts, bushings, shutters, earthing switch with short-circuit making capacity	6
Operating voltage of the drive motor 230 V AC	K
With mechanical interlocking, circuit breaker tripping signal, auxiliary switch 12 NO + 12 NC and 64-pole plug	N
Frequency of the operating voltage 50 Hz and DC, operating instructions and rating plate in German	0
Hand crank	– Z (order code F 3 0)

Example of an Article No.: 3AE5124-2AC90-6KN0-Z
Order codes: L1B + F30

Options for the operating mechanism housing



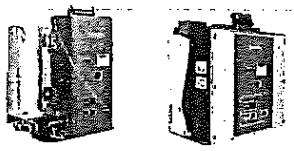




Narrow operating mechanism housing* ≤ 1600 A
Wide operating mechanism housing** > 1600 A

Ordering option:
*Wide housing orderable with D59
**Third release only possible in wide housing

See page 37



7.2 kV

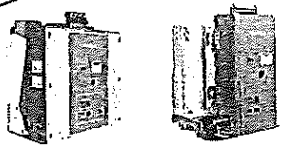
Position:	1	2	3	4	5	6	7	–	8	9–12	13th position = Equipment package						14–16			Order codes		
Article No.:	3	A	E	5	■	■	■	–	■	■	■						■	–	★	■	■	■
											Orderable versions											
Rated voltage for 50/60 Hz U_r kV	Rated lightning impulse voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Rated short-circuit breaking current (with 50% DC component I_{sc} kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Pole-center distance mm	Width across flats mm	Rated normal current I_r A				Circuit breaker for fixed mounting, without circuit breaker installation accessories	On withdrawable part	On withdrawable part with complete contact system *	On withdrawable part with complete contact system and bushings *	Withdrawable module without earthing switch	Withdrawable module with earthing switch	See pages 38 to 40		See page 41			
7.2	60	20	16	40/42	210	310	800	3	A	E	5	0	8	2	–	1	■	■	●	●	●	●					
						310	1250	3	A	E	5	0	8	2	–	2	■	■	●	●	●	●					
						310	1600	3	A	E	5	0	8	2	–	3	■	■	●	●	●	●					
						275	800	3	A	E	5	0	7	2	–	1	■	■	●	●	●	●					
						275	1250	3	A	E	5	0	7	2	–	2	■	■	●	●	●	●					
						205	800	3	A	E	5	0	6	2	–	1	■	■	●	●							
						205	1250	3	A	E	5	0	6	2	–	2	■	■	●	●							
					160	310	800	3	A	E	5	0	5	2	–	1	■	■	●	●							
						310	1250	3	A	E	5	0	5	2	–	2	■	■	●	●							
						310	1600	3	A	E	5	0	5	2	–	3	■	■	●	●							
						275	800	3	A	E	5	0	4	2	–	1	■	■	●	●							
						275	1250	3	A	E	5	0	4	2	–	2	■	■	●	●							
						205	800	3	A	E	5	0	3	2	–	1	■	■	●	●							
						205	1250	3	A	E	5	0	3	2	–	2	■	■	●	●							
					150	310	800	3	A	E	5	0	2	2	–	1	■	■	●	●	●	●					
						310	1250	3	A	E	5	0	2	2	–	2	■	■	●	●	●	●					
						310	1600	3	A	E	5	0	2	2	–	3	■	■	●	●	●	●					
						275	800	3	A	E	5	0	1	2	–	1	■	■	●	●	●	●					
						275	1250	3	A	E	5	0	1	2	–	2	■	■	●	●	●	●					
						205	800	3	A	E	5	0	0	2	–	1	■	■	●	●							
						205	1250	3	A	E	5	0	0	2	–	2	■	■	●	●							
7.2	60	20	20	50/52	210	310	800	3	A	E	5	0	8	3	–	1	■	■	●	●	●	●					
						310	1250	3	A	E	5	0	8	3	–	2	■	■	●	●	●	●					
						310	1600	3	A	E	5	0	8	3	–	3	■	■	●	●	●	●					
						275	800	3	A	E	5	0	7	3	–	1	■	■	●	●	●	●					
						275	1250	3	A	E	5	0	7	3	–	2	■	■	●	●	●	●					
						205	800	3	A	E	5	0	6	3	–	1	■	■	●	●							
						205	1250	3	A	E	5	0	6	3	–	2	■	■	●	●							
					160	310	800	3	A	E	5	0	5	3	–	1	■	■	●	●							
						310	1250	3	A	E	5	0	5	3	–	2	■	■	●	●							
						310	1600	3	A	E	5	0	5	3	–	3	■	■	●	●							
						275	800	3	A	E	5	0	4	3	–	1	■	■	●	●							
						275	1250	3	A	E	5	0	4	3	–	2	■	■	●	●							
						205	800	3	A	E	5	0	3	3	–	1	■	■	●	●							
						205	1250	3	A	E	5	0	3	3	–	2	■	■	●	●							
					150	310	800	3	A	E	5	0	2	3	–	1	■	■	●	●	●	●					
						310	1250	3	A	E	5	0	2	3	–	2	■	■	●	●	●	●					
						310	1600	3	A	E	5	0	2	3	–	3	■	■	●	●	●	●					
						275	800	3	A	E	5	0	1	3	–	1	■	■	●	●	●	●					
						275	1250	3	A	E	5	0	1	3	–	2	■	■	●	●	●	●					
						205	800	3	A	E	5	0	0	3	–	1	■	■	●	●							
						205	1250	3	A	E	5	0	0	3	–	2	■	■	●	●							
7.2	60	20	25	63/65	210	310	800	3	A	E	5	0	8	4	–	1	■	■	●	●	●	●					
						310	1250	3	A	E	5	0	8	4	–	2	■	■	●	●	●	●					

Special version U_d = 32 kV – Z E 1 6

See pages 35 and 36

Legend: ● With contact system
■ Without contact system

*) Can also be ordered without withdrawable part, see page 37, 13th position



7.2 kV

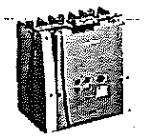
Rated voltage for 50/60 Hz U_r	Rated lightning impulse voltage U_p	Rated short-duration power-frequency withstand voltage U_d	Rated short-circuit breaking current with 50% DC component I_{sc}	Rated short-circuit making current (at 50/60 Hz) I_{ma}	Pole-center distance	Width across flats	Rated normal current I_r	Position: 1 2 3 4 5 6 7 – 8 9–12	See pages 35 and 36	Orderable versions: Circuit breaker for fixed mounting, without circuit breaker installation accessories	On withdrawable part	On withdrawable part with complete contact system *	On withdrawable part with complete contact system and bushings *	Withdrawable module without earthing switch	Withdrawable module with earthing switch	See pages 38 to 40	See page 41	Order codes
kV	kV	kV	kA	kA	mm	mm	A	Article No.: 3 A E 5 ■ ■ ■ – ■ ■ –										■ ■ ■
						310	1600	3 A E 5 0 8 4 – 3		■	■	●	●	●	●			
						310	2000	3 A E 5 0 8 4 – 4		■	■	●	●	●	●			
						310	2500	3 A E 5 0 8 4 – 6		■	■	●	●	●	●			
						275	800	3 A E 5 0 7 4 – 1		■	■	●	●	●	●			
						275	1250	3 A E 5 0 7 4 – 2		■	■	●	●	●	●			
						205	800	3 A E 5 0 6 4 – 1		■	■	●	●					
						205	1250	3 A E 5 0 6 4 – 2		■	■	●	●					
					160	310	800	3 A E 5 0 5 4 – 1		■	■	●	●					
						310	1250	3 A E 5 0 5 4 – 2		■	■	●	●					
						310	1600	3 A E 5 0 5 4 – 3		■	■	●	●					
						275	800	3 A E 5 0 4 4 – 1		■	■	●	●					
						275	1250	3 A E 5 0 4 4 – 2		■	■	●	●					
						205	800	3 A E 5 0 3 4 – 1		■	■	●	●					
						205	1250	3 A E 5 0 3 4 – 2		■	■	●	●					
					150	310	800	3 A E 5 0 2 4 – 1		■	■	●	●	●	●			
						310	1250	3 A E 5 0 2 4 – 2		■	■	●	●	●	●			
						310	1600	3 A E 5 0 2 4 – 3		■	■	●	●	●	●			
						275	800	3 A E 5 0 1 4 – 1		■	■	●	●	●	●			
						275	1250	3 A E 5 0 1 4 – 2		■	■	●	●	●	●			
						205	800	3 A E 5 0 0 4 – 1		■	■	●	●					
						205	1250	3 A E 5 0 0 4 – 2		■	■	●	●					
7.2	60	20	31.5	80/82	210	310	800	3 A E 5 0 8 5 – 1		■	■	●	●	●	●			
						310	1250	3 A E 5 0 8 5 – 2		■	■	●	●	●	●			
						310	1600	3 A E 5 0 8 5 – 3		■	■	●	●	●	●			
						310	2000	3 A E 5 0 8 5 – 4		■	■	●	●	●	●			
						310	2500	3 A E 5 0 8 5 – 6		■	■	●	●	●	●			
						275	800	3 A E 5 0 7 5 – 1		■	■	●	●	●	●			
						275	1250	3 A E 5 0 7 5 – 2		■	■	●	●	●	●			
						205	800	3 A E 5 0 6 5 – 1		■	■	●	●					
						205	1250	3 A E 5 0 6 5 – 2		■	■	●	●					
					160	310	800	3 A E 5 0 5 5 – 1		■	■	●	●					
						310	1250	3 A E 5 0 5 5 – 2		■	■	●	●					
						310	1600	3 A E 5 0 5 5 – 3		■	■	●	●					
						275	800	3 A E 5 0 4 5 – 1		■	■	●	●					
						275	1250	3 A E 5 0 4 5 – 2		■	■	●	●					
						205	800	3 A E 5 0 3 5 – 1		■	■	●	●					
						205	1250	3 A E 5 0 3 5 – 2		■	■	●	●					
					150	310	800	3 A E 5 0 2 5 – 1		■	■	●	●	●	●			
						310	1250	3 A E 5 0 2 5 – 2		■	■	●	●	●	●			
						310	1600	3 A E 5 0 2 5 – 3		■	■	●	●	●	●			
						275	800	3 A E 5 0 1 5 – 1		■	■	●	●	●	●			
						275	1250	3 A E 5 0 1 5 – 2		■	■	●	●	●	●			
						205	800	3 A E 5 0 0 5 – 1		■	■	●	●					
						205	1250	3 A E 5 0 0 5 – 2		■	■	●	●					

Special version U_d = 32 kV
I_{sc} **) = 26.3 kA

– Z E 1 6
– Z E 4 6

Legend: ● With contact system
■ Without contact system

*) Can also be ordered without withdrawable part, see page 37, 13th position
**) Only possible with I_{sc} = 25 kA



7.2 kV

Position:	1	2	3	4	5	6	7	–	8	9–12	13th position = Equipment package	14–16	Order codes
Article No.:	3	A	E	1	■	■	■	–	■	■	■	■ – ★	■ ■ ■

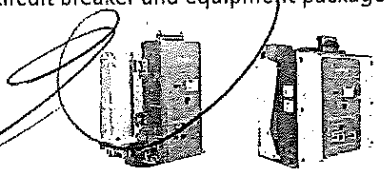
Rated voltage for 50/60 Hz U_r	Rated lightning impulse voltage U_p	Rated short-duration power-frequency withstand voltage U_d	Rated short-circuit breaking current I_{sc} with 36% DC component	Rated short-circuit making current (at 50/60 Hz) I_{ma}	Pole-center distance	Width across flats	Rated normal current I_r									See pages 35 and 36	Orderable versions: Circuit breaker for fixed mounting, without circuit breaker installation accessories	On withdrawable part	On withdrawable part with complete contact system *	On withdrawable part with complete contact system and bushings *	Withdrawable module without earthing switch	Withdrawable module with earthing switch	See pages 38 to 40	See page 41
kV	kV	kV	kA	kA	mm	mm	A																	
7.2	60	20	40	100/104	210	310	1250	3	A	E	1	0	8	6	–	2	■	■	●	●	●	●		
						310	2000	3	A	E	1	0	8	6	–	4	■	■	●	●	●	●		
						310	2500	3	A	E	1	0	8	6	–	6	■	■	●	●	●	●		
						310	3150	3	A	E	1	0	8	6	–	7	■	■	●	●	●	●		
Special version U_d = 32 kV																							– Z	E 1 6

Legend: ● With contact system
■ Without contact system

*) Can also be ordered without withdrawable part, see page 37, 13th position

Device selection

Circuit breaker and equipment package



12 kV

Rated voltage for 50/60 Hz U_r kV	Rated lightning impulse voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Rated short-circuit breaking current with 50% DC component I_{sc} kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Pole-center distance mm	Width across flats mm	Rated normal current I_r A	Position: 1 2 3 4 5 6 7 – 8 9–12	13th position = Equipment package 14–16	Order codes
								Article No.: 3 A E 5 ■ ■ ■ – ■ ■ –	■ ■ – ★	■ ■ ■

See pages 35 and 36

Orderable versions

Circuit-breaker for fixed mounting, without circuit-breaker installation accessories	On withdrawable part	On withdrawable part with complete contact system *	On withdrawable part with complete contact system and bushings *	Withdrawable module without earthing switch	Withdrawable module with earthing switch
■	■	●	●	●	●

See pages 38 to 40

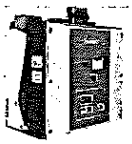
See page 41

12	75	28	16	40/42	210	310	800	3 A E 5 1 8 2 – 1	
						310	1250	3 A E 5 1 8 2 – 2	
						310	1600	3 A E 5 1 8 2 – 3	
						275	800	3 A E 5 1 7 2 – 1	
						275	1250	3 A E 5 1 7 2 – 2	
						205	800	3 A E 5 1 6 2 – 1	
						205	1250	3 A E 5 1 6 2 – 2	
					160	310	800	3 A E 5 1 5 2 – 1	
						310	1250	3 A E 5 1 5 2 – 2	
						310	1600	3 A E 5 1 5 2 – 3	
						275	800	3 A E 5 1 4 2 – 1	
						275	1250	3 A E 5 1 4 2 – 2	
						205	800	3 A E 5 1 3 2 – 1	
						205	1250	3 A E 5 1 3 2 – 2	
					150	310	800	3 A E 5 1 2 2 – 1	
						310	1250	3 A E 5 1 2 2 – 2	
						310	1600	3 A E 5 1 2 2 – 3	
						275	800	3 A E 5 1 1 2 – 1	
						275	1250	3 A E 5 1 1 2 – 2	
						205	800	3 A E 5 1 0 2 – 1	
						205	1250	3 A E 5 1 0 2 – 2	
12	75	28	20	50/52	275	310	2000	3 A E 5 5 8 3 – 4	
						310	2500	3 A E 5 5 8 3 – 6	
					210	310	800	3 A E 5 1 8 3 – 1	
						310	1250	3 A E 5 1 8 3 – 2	
						310	1600	3 A E 5 1 8 3 – 3	
						310	2000	3 A E 5 1 8 3 – 4	
						310	2500	3 A E 5 1 8 3 – 6	
						275	800	3 A E 5 1 7 3 – 1	
						275	1250	3 A E 5 1 7 3 – 2	
						205	800	3 A E 5 1 6 3 – 1	
						205	1250	3 A E 5 1 6 3 – 2	
					160	310	800	3 A E 5 1 5 3 – 1	
						310	1250	3 A E 5 1 5 3 – 2	
						310	1600	3 A E 5 1 5 3 – 3	
						275	800	3 A E 5 1 4 3 – 1	
						275	1250	3 A E 5 1 4 3 – 2	
						205	800	3 A E 5 1 3 3 – 1	
						205	1250	3 A E 5 1 3 3 – 2	
					150	310	800	3 A E 5 1 2 3 – 1	
						310	1250	3 A E 5 1 2 3 – 2	
						310	1600	3 A E 5 1 2 3 – 3	

Special version U_d = 42 kV
U_p = 95 kV – Z E 1 3
– Z E 9 5

Legend: ● With contact system
■ Without contact system

*) Can also be ordered without withdrawable part (see page 37, 13th position



12 kV

Position:	1	2	3	4	5	6	7	–	8	9–12	13th position = Equipment package	14–16	Order codes
Article No.:	3	A	E	5	■	■	■	–	■	■	■	■	■ ■ ■

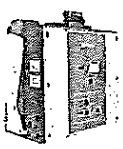
Rated voltage for 50/60 Hz U_r kV	Rated lightning impulse voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Rated short-circuit breaking current with 50% DC component I_{sc} kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Pole-center distance mm	Width across flats mm	Rated normal current I_r A											Orderable versions: Circuit breaker for fixed mounting, without circuit breaker installation accessories	On withdrawable part	On withdrawable part with complete contact system *)	On withdrawable part with complete contact system and bushings *)	Withdrawable module without earthing switch	Withdrawable module with earthing switch	See pages 35 and 36	See pages 38 to 40	See page 41
						275	800	3	A	E	5	1	1	3	–	1		■	■	●	●	●	●			
						275	1250	3	A	E	5	1	1	3	–	2		■	■	●	●	●	●			
						205	800	3	A	E	5	1	0	3	–	1		■	■	●	●					
						205	1250	3	A	E	5	1	0	3	–	2		■	■	●	●					
12	75	28	25	63/65	275	310	2000	3	A	E	5	5	8	4	–	4		■	■	●	●					
						310	2500	3	A	E	5	5	8	4	–	6		■	■	●	●					
					210	310	800	3	A	E	5	1	8	4	–	1		■	■	●	●	●	●			
						310	1250	3	A	E	5	1	8	4	–	2		■	■	●	●	●	●			
						310	1600	3	A	E	5	1	8	4	–	3		■	■	●	●	●	●			
						310	2000	3	A	E	5	1	8	4	–	4		■	■	●	●	●	●			
						310	2500	3	A	E	5	1	8	4	–	6		■	■	●	●	●	●			
						275	800	3	A	E	5	1	7	4	–	1		■	■	●	●	●	●			
						275	1250	3	A	E	5	1	7	4	–	2		■	■	●	●	●	●			
						205	800	3	A	E	5	1	6	4	–	1		■	■	●	●					
						205	1250	3	A	E	5	1	6	4	–	2		■	■	●	●					
					160	310	800	3	A	E	5	1	5	4	–	1		■	■	●	●					
						310	1250	3	A	E	5	1	5	4	–	2		■	■	●	●					
						310	1600	3	A	E	5	1	5	4	–	3		■	■	●	●					
						275	800	3	A	E	5	1	4	4	–	1		■	■	●	●					
						275	1250	3	A	E	5	1	4	4	–	2		■	■	●	●					
						205	800	3	A	E	5	1	3	4	–	1		■	■	●	●					
						205	1250	3	A	E	5	1	3	4	–	2		■	■	●	●					
					150	310	800	3	A	E	5	1	2	4	–	1		■	■	●	●	●	●			
						310	1250	3	A	E	5	1	2	4	–	2		■	■	●	●	●	●			
						310	1600	3	A	E	5	1	2	4	–	3		■	■	●	●	●	●			
						275	800	3	A	E	5	1	1	4	–	1		■	■	●	●	●	●			
						275	1250	3	A	E	5	1	1	4	–	2		■	■	●	●	●	●			
						205	800	3	A	E	5	1	0	4	–	1		■	■	●	●					
						205	1250	3	A	E	5	1	0	4	–	2		■	■	●	●					
Special version U_d = 42 kV																									–	Z	E 1 3
I_{sc} **) = 26.3 kA																									–	Z	E 4 6
U_p = 95 kV																									–	Z	E 9 5

Legend: ● With contact system
■ Without contact system

*) Can also be ordered without withdrawable part, page 37, 13th position

**) Only possible with I_{sc} = 25 kA

Device selection
Circuit breaker and equipment package

12 kV

Position: 1 2 3 4 5 6 7 – 8 9–12 | 13th position = Equipment package | 14–16 | Order codes

Article No.: 3 A E 5 ■ ■ ■ – ■ ■ – | ■ | ■ – ★ | ■ ■ ■

Rated voltage for 50/60 Hz U_r kV	Rated lightning impulse voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Rated short-circuit breaking current with 50% DC component I_{sc} kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Pole-center distance mm	Width across flats mm	Rated normal current I_r A	See pages 35 and 36	Orderable versions: Circuit breaker for fixed mounting, without circuit breaker installation accessories	On withdrawable part	On withdrawable part with complete contact system *	On withdrawable part with complete contact system and bushings *	Withdrawable module without earthing switch	Withdrawable module with earthing switch	See pages 38 to 40	See page 41
12	75	28	31.5	80/82		310	2000	3 A E 5 5 8 5 – 4	■	■	●	●				
						310	2500	3 A E 5 5 8 5 – 6	■	■	●	●				
12	75	28	31.5	80/82	210	310	800	3 A E 5 1 8 5 – 1	■	■	●	●	●	●		
						310	1250	3 A E 5 1 8 5 – 2	■	■	●	●	●	●		
						310	1600	3 A E 5 1 8 5 – 3	■	■	●	●	●	●		
						310	2000	3 A E 5 1 8 5 – 4	■	■	●	●	●	●		
						310	2500	3 A E 5 1 8 5 – 6	■	■	●	●	●	●		
						275	800	3 A E 5 1 7 5 – 1	■	■	●	●	●	●		
						275	1250	3 A E 5 1 7 5 – 2	■	■	●	●	●	●		
						205	800	3 A E 5 1 6 5 – 1	■	■	●	●				
						205	1250	3 A E 5 1 6 5 – 2	■	■	●	●				
					160	310	800	3 A E 5 1 5 5 – 1	■	■	●	●				
						310	1250	3 A E 5 1 5 5 – 2	■	■	●	●				
						310	1600	3 A E 5 1 5 5 – 3	■	■	●	●				
						275	800	3 A E 5 1 4 5 – 1	■	■	●	●				
						275	1250	3 A E 5 1 4 5 – 2	■	■	●	●				
						205	800	3 A E 5 1 3 5 – 1	■	■	●	●				
						205	1250	3 A E 5 1 3 5 – 2	■	■	●	●				
					150	310	800	3 A E 5 1 2 5 – 1	■	■	●	●	●	●		
						310	1250	3 A E 5 1 2 5 – 2	■	■	●	●	●	●		
						310	1600	3 A E 5 1 2 5 – 3	■	■	●	●	●	●		
						275	800	3 A E 5 1 1 5 – 1	■	■	●	●	●	●		
						275	1250	3 A E 5 1 1 5 – 2	■	■	●	●	●	●		
						205	800	3 A E 5 1 0 5 – 1	■	■	●	●				
						205	1250	3 A E 5 1 0 5 – 2	■	■	●	●				
Special version U_d = 42 kV U_p = 95 kV															– Z E 1 3 – Z E 9 5	
Circuit breaker for installation in NXAIR World [1]																
12	75	28	25	63/65	160	275	800	3 A E 5 5 5 4 – 1	■						– Z W 6 3	
						275	1250	3 A E 5 5 5 4 – 2	■						– Z W 6 3	
					210	275	1600	3 A E 5 5 6 4 – 3	■						– Z W 6 3	
			31.5	80/82	160	275	800	3 A E 5 5 5 5 – 1	■						– Z W 6 3	
						275	1250	3 A E 5 5 5 5 – 2	■						– Z W 6 3	
					210	275	1250	3 A E 5 5 6 5 – 2	■						– Z W 6 3	
						275	1600	3 A E 5 5 6 5 – 3	■						– Z W 6 3	
						275	2500	3 A E 5 5 6 5 – 6	■						– Z W 6 3	
Special version U_d = 42 kV I_{sc} **) = 26.3 kA U_p = 95 kV															– Z E 1 3 – Z E 4 6 – Z E 9 5	

1) W63 is absolutely necessary as order code

Legend: ● With contact system
■ Without contact system

*) Can also be ordered without withdrawable part, see page 37, 13th position

**) Only possible with I_{sc} = 25 kA

12 kV

Position:	1	2	3	4	5	6	7	–	8	9–12	13th position = Equipment package	14–16		Order codes
Article No.:	3	A	E	1	■	■	■	–	■	■	■	■	–	★	■ ■ ■

Rated voltage for 50/60 Hz U_r kV	Rated lightning impulse voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Rated short-circuit breaking current with 36% DC component I_{sc} kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Pole-center distance mm	Width across flats mm	Rated normal current I_r A											Orderable versions: Circuit breaker for fixed mounting, without circuit breaker installation accessories	On withdrawable part	On withdrawable part with complete contact system *	On withdrawable part with complete contact system and bushings *	Withdrawable module without earthing switch	Withdrawable module with earthing switch	See pages 38 to 40	See page 41	
12	75	28	40	100/104	275	310	1250	3	A	E	1	5	8	6	–	2	See pages 35 and 36	■	■	●	●					
						310	2000	3	A	E	1	5	8	6	–	4		■	■	●	●					
						310	2500	3	A	E	1	5	8	6	–	6		■	■	●	●					
						310	3150	3	A	E	1	5	8	6	–	7		■	■	●	●					
					210	310	1250	3	A	E	1	1	8	6	–	2		■	■	●	●	●	●			
						310	2000	3	A	E	1	1	8	6	–	4		■	■	●	●	●	●			
						310	2500	3	A	E	1	1	8	6	–	6		■	■	●	●	●	●			
						310	3150	3	A	E	1	1	8	6	–	7		■	■	●	●	●	●			
Circuit breaker for installation in NXAIR World [1]																										
Special version U_d = 42 kV																										
			40	100/104	210	275	1250	3	A	E	1	5	6	6	–	2		■						–	Z	E 1 3
						275	2500	3	A	E	1	5	6	6	–	6		■						–	Z	W 6 3
						275	3150	3	A	E	1	5	6	6	–	7		■						–	Z	W 6 3
Special version U_d = 42 kV																								–	Z	E 1 3

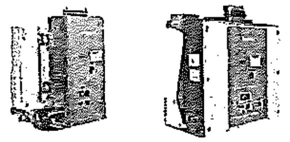
1) W63 is absolutely necessary as order code

*) Can also be ordered without withdrawable part, see page 37, 13th position

Legend: ● With contact system
■ Without contact system

Device selection

Circuit breaker and equipment package



17.5 kV

Position: 1 2 3 4 5 6 7 – 8 9–12 | 13th position = Equipment package | 14–16 | Order codes

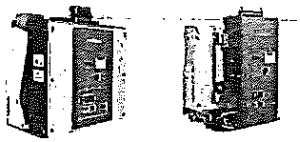
Article No.: 3 A E 5 ■ ■ ■ – ■ ■ – ■ | ■ ■ – ★ | ■ ■ ■

Rated voltage for 50/60 Hz U_r kV	Rated lightning impulse voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Rated short-circuit breaking current with 50% DC component I_{sc} kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Pole-center distance mm	Width across flats mm	Rated normal current I_r A	Article No. (positions 1–12, see pages 35 and 36)	Circuit-breaker for fixed mounting, without circuit-breaker installation accessories	On withdrawable part	On withdrawable part with complete contact system *)	On withdrawable part with complete contact system and bushings *)	Withdrawable module without earthing switch	Withdrawable module with earthing switch	14–16 (see pages 38 to 40)	Order codes (see page 41)
17.5	95	38	16	40/42	210	310	800	3 A E 5 2 8 2 – 1	■	■	●	●	●	●	– Z	D 9 0**
						310	1250	3 A E 5 2 8 2 – 2	■	■	●	●	●	●	– Z	D 9 0**
						310	1600	3 A E 5 2 8 2 – 3	■	■	●	●	●	●	– Z	D 9 0**
						275	800	3 A E 5 2 7 2 – 1	■	■	●	●	●	●	– Z	D 9 0**
						275	1250	3 A E 5 2 7 2 – 2	■	■	●	●	●	●	– Z	D 9 0**
						205	800	3 A E 5 2 6 2 – 1	■	■	●	●			– Z	D 9 0**
						205	1250	3 A E 5 2 6 2 – 2	■	■	●	●			– Z	D 9 0**
					160	310	800	3 A E 5 2 5 2 – 1	■	■	●	●			– Z	D 9 0**
						310	1250	3 A E 5 2 5 2 – 2	■	■	●	●			– Z	D 9 0**
						310	1600	3 A E 5 2 5 2 – 3	■	■	●	●			– Z	D 9 0**
						275	800	3 A E 5 2 4 2 – 1	■	■	●	●			– Z	D 9 0**
						275	1250	3 A E 5 2 4 2 – 2	■	■	●	●			– Z	D 9 0**
						205	800	3 A E 5 2 3 2 – 1	■	■	●	●			– Z	D 9 0**
						205	1250	3 A E 5 2 3 2 – 2	■	■	●	●			– Z	D 9 0**
					150	310	800	3 A E 5 2 2 2 – 1	■	■	●	●	●	●	– Z	D 9 0**
						310	1250	3 A E 5 2 2 2 – 2	■	■	●	●	●	●	– Z	D 9 0**
						310	1600	3 A E 5 2 2 2 – 3	■	■	●	●	●	●	– Z	D 9 0**
						275	800	3 A E 5 2 1 2 – 1	■	■	●	●	●	●	– Z	D 9 0**
						275	1250	3 A E 5 2 1 2 – 2	■	■	●	●	●	●	– Z	D 9 0**
						205	800	3 A E 5 2 0 2 – 1	■	■	●	●			– Z	D 9 0**
						205	1250	3 A E 5 2 0 2 – 2	■	■	●	●			– Z	D 9 0**
17.5	95	38	25	63/65	275	310	2000	3 A E 5 6 5 4 – 4	■	■	●	●			– Z	D 9 0**
						310	2500	3 A E 5 6 5 4 – 6	■	■	●	●			– Z	D 9 0**
					210	310	800	3 A E 5 2 8 4 – 1	■	■	●	●	●	●	– Z	D 9 0**
						310	1250	3 A E 5 2 8 4 – 2	■	■	●	●	●	●	– Z	D 9 0**
						310	1600	3 A E 5 2 8 4 – 3	■	■	●	●	●	●	– Z	D 9 0**
						310	2000	3 A E 5 2 8 4 – 4	■	■	●	●	●	●	– Z	D 9 0**
						310	2500	3 A E 5 2 8 4 – 6	■	■	●	●	●	●	– Z	D 9 0**
						275	800	3 A E 5 2 7 4 – 1	■	■	●	●	●	●	– Z	D 9 0**
						275	1250	3 A E 5 2 7 4 – 2	■	■	●	●	●	●	– Z	D 9 0**
						205	800	3 A E 5 2 6 4 – 1	■	■	●	●			– Z	D 9 0**
						205	1250	3 A E 5 2 6 4 – 2	■	■	●	●			– Z	D 9 0**
					160	310	800	3 A E 5 2 5 4 – 1	■	■	●	●			– Z	D 9 0**
						310	1250	3 A E 5 2 5 4 – 2	■	■	●	●			– Z	D 9 0**
						310	1600	3 A E 5 2 5 4 – 3	■	■	●	●			– Z	D 9 0**
						275	800	3 A E 5 2 4 4 – 1	■	■	●	●			– Z	D 9 0**
						275	1250	3 A E 5 2 4 4 – 2	■	■	●	●			– Z	D 9 0**
						205	800	3 A E 5 2 3 4 – 1	■	■	●	●			– Z	D 9 0**
						205	1250	3 A E 5 2 3 4 – 2	■	■	●	●			– Z	D 9 0**
					150	310	800	3 A E 5 2 2 4 – 1	■	■	●	●	●	●	– Z	D 9 0**
						310	1250	3 A E 5 2 2 4 – 2	■	■	●	●	●	●	– Z	D 9 0**
						310	1600	3 A E 5 2 2 4 – 3	■	■	●	●	●	●	– Z	D 9 0**
						275	800	3 A E 5 2 1 4 – 1	■	■	●	●	●	●	– Z	D 9 0**
						275	1250	3 A E 5 2 1 4 – 2	■	■	●	●	●	●	– Z	D 9 0**
						205	800	3 A E 5 2 0 4 – 1	■	■	●	●			– Z	D 9 0**
						205	1250	3 A E 5 2 0 4 – 2	■	■	●	●			– Z	D 9 0**

Legend: ● With contact system
■ Without contact system

*) Can also be ordered without withdrawable part, see page 37, 13th position

**) As a difference, other insulating shells are also possible, see page 37



17.5 kV

Rated voltage for 50/60 Hz U_r kV	Rated lightning impulse voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Rated short-circuit breaking current with 50% DC component I_{sc} kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Pole-center distance mm	Width across flats mm	Rated normal current I_r A	Position: 1 2 3 4 5 6 7 – 8 9–12	See pages 35 and 36	Orderable versions: Circuit breaker for fixed mounting, without circuit breaker installation accessories	On withdrawable part	On withdrawable part with complete contact system *	On withdrawable part with complete contact system and bushings *	Withdrawable module without earthing switch	Withdrawable module with earthing switch	See pages 38 to 40	See page 41	Order codes
17.5	95	38	31.5	63/65	275	310	1250	3 A E 5 6 5 5 – 2		■	■	●	●	●	●	–	Z	D 9 0**
						310	1600	3 A E 5 6 5 5 – 3		■	■	●	●	●	●	–	Z	D 9 0**
						310	2000	3 A E 5 6 5 5 – 4		■	■	●	●	●	●	–	Z	D 9 0**
						310	2500	3 A E 5 6 5 5 – 6		■	■	●	●	●	●	–	Z	D 9 0**
					210	310	800	3 A E 5 2 8 5 – 1		■	■	●	●	●	●	–	Z	D 9 0**
						310	1250	3 A E 5 2 8 5 – 2		■	■	●	●	●	●	–	Z	D 9 0**
						310	1600	3 A E 5 2 8 5 – 3		■	■	●	●	●	●	–	Z	D 9 0**
						310	2000	3 A E 5 2 8 5 – 4		■	■	●	●	●	●	–	Z	D 9 0**
						310	2500	3 A E 5 2 8 5 – 6		■	■	●	●	●	●	–	Z	D 9 0**
						275	800	3 A E 5 2 7 5 – 1		■	■	●	●	●	●	–	Z	D 9 0**
						275	1250	3 A E 5 2 7 5 – 2		■	■	●	●	●	●	–	Z	D 9 0**
						205	800	3 A E 5 2 6 5 – 1		■	■	●				–	Z	D 9 0**
						205	1250	3 A E 5 2 6 5 – 2		■	■	●				–	Z	D 9 0**
					160	310	800	3 A E 5 2 5 5 – 1		■	■	●				–	Z	D 9 0**
						310	1250	3 A E 5 2 5 5 – 2		■	■	●				–	Z	D 9 0**
						310	1600	3 A E 5 2 5 5 – 3		■	■	●				–	Z	D 9 0**
						275	800	3 A E 5 2 4 5 – 1		■	■	●				–	Z	D 9 0**
						275	1250	3 A E 5 2 4 5 – 2		■	■	●				–	Z	D 9 0**
						205	800	3 A E 5 2 3 5 – 1		■	■	●				–	Z	D 9 0**
						205	1250	3 A E 5 2 3 5 – 2		■	■	●				–	Z	D 9 0**
					150	310	800	3 A E 5 2 2 5 – 1		■	■	●	●	●	●	–	Z	D 9 0**
						310	1250	3 A E 5 2 2 5 – 2		■	■	●	●	●	●	–	Z	D 9 0**
						310	1600	3 A E 5 2 2 5 – 3		■	■	●	●	●	●	–	Z	D 9 0**
						275	800	3 A E 5 2 1 5 – 1		■	■	●	●	●	●	–	Z	D 9 0**
						275	1250	3 A E 5 2 1 5 – 2		■	■	●	●	●	●	–	Z	D 9 0**
						205	800	3 A E 5 2 0 5 – 1		■	■	●				–	Z	D 9 0**
						205	1250	3 A E 5 2 0 5 – 2		■	■	●	●			–	Z	D 9 0**
Circuit breaker for installation in NXAIR World 1)																		
17.5	95	38	25	63/65	160	275	800	3 A E 5 6 2 4 – 1		■						–	Z	W 6 3
						275	1250	3 A E 5 6 2 4 – 2		■						–	Z	W 6 3
					210	275	800	3 A E 5 6 6 4 – 1		■						–	Z	W 6 3
						275	1250	3 A E 5 6 6 4 – 2		■						–	Z	W 6 3
					210	275	1600	3 A E 5 6 6 4 – 3		■						–	Z	W 6 3
			31.5	80/82	160	275	800	3 A E 5 6 2 5 – 1		■						–	Z	W 6 3
						275	1250	3 A E 5 6 2 5 – 2		■						–	Z	W 6 3
					210	275	1250	3 A E 5 6 6 5 – 2		■						–	Z	W 6 3
						275	1600	3 A E 5 6 6 5 – 3		■						–	Z	W 6 3
						275	2500	3 A E 5 6 6 5 – 6		■						–	Z	W 6 3

1) W63 is absolutely necessary as order code

*) Can also be ordered without withdrawable part, see page 37, 13th position

**) As a difference, other insulating shells are also possible, see page 37

Legend: ● With contact system
■ Without contact system

17.5 kV

Position: 1 2 3 4 5 6 7 – 8 9–12 | 13th position = Equipment package | 14–16 | Order codes

Article No.: 3 A E 1 ■ ■ ■ – ■ ■ – | ■ | ■ – ★ | ■ ■ ■

Rated voltage for 50/60 Hz U_r kV	Rated lightning impulse voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Rated short-circuit breaking current with 36% DC component I_{sc} kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Pole-center distance mm	Width across flats mm	Rated normal current I_r A	Orderable versions: Circuit breaker for fixed mounting, without circuit-breaker installation accessories	On withdrawable part	On withdrawable part with complete contact system *)	On withdrawable part with complete contact system and bushings *)	Withdrawable module without earthing switch	Withdrawable module with earthing switch	See pages 35 and 36	See pages 38 to 40	See page 41	Order codes
17.5	95	38	40	100/104	275	310	1250	3 A E 1 6 5 6 – 2	■	■	●	●					– Z D 9 0**
						310	2000	3 A E 1 6 5 6 – 4	■	■	●	●					– Z D 9 0**
						310	2500	3 A E 1 6 5 6 – 6	■	■	●	●					– Z D 9 0**
						310	3150	3 A E 1 6 5 6 – 7	■	■	●	●					– Z D 9 0**
					210	310	1250	3 A E 1 2 8 6 – 2	■	■	●	●	●	●			– Z D 9 0**
						310	2000	3 A E 1 2 8 6 – 4	■	■	●	●	●	●			– Z D 9 0**
						310	2500	3 A E 1 2 8 6 – 6	■	■	●	●	●	●			– Z D 9 0**
						310	3150	3 A E 1 2 8 6 – 7	■	■	●	●	●	●			– Z D 9 0**
Circuit breaker for installation in NXAIR World 1)																	
			40	100/104	210	275	1250	3 A E 1 6 6 6 – 2	■								– Z W 6 3
						275	2500	3 A E 1 6 6 6 – 6	■								– Z W 6 3
						275	3150	3 A E 1 6 6 6 – 7	■								– Z W 6 3

Legend: ● With contact system ■ Without contact system

1) W63 is absolutely necessary as order code

*) Can also be ordered without withdrawable part, see page 37, 13th position

**) As a difference, other insulating shells are also possible, see page 37

2

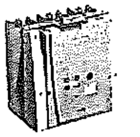
24 kV

Rated voltage for 50/60 Hz U_r	Rated lightning impulse voltage U_p	Rated short-duration power-frequency withstand voltage U_d	Rated short-circuit breaking current I_{sc}	Rated short-circuit breaking current with 50% DC component I_{sc}	Rated short-circuit making current (at 50/60 Hz) I_{ma}	Pole-center distance	Width across flats	Rated normal current I_r	Position: 1	2	3	4	5	6	7	–	8	9–12	13th position = Equipment package	14–16	Order codes
									Article No.:	3	A	E	5	■	■	■	–	■	■	–	■	■ ■ ■
kV	kV	kV	kA	kA	kA	mm	mm	A											See pages 35 and 36	Orderable versions	See pages 38 to 40	See page 41
																				Circuit breaker for fixed mounting, without circuit breaker installation accessories / On withdrawable part / On withdrawable part with complete contact system * / On withdrawable part with complete contact system and bushings * / Withdrawable module without earthing switch / Withdrawable module with earthing switch		
24	125	50	16	40/42	210	310	800		3	A	E	5	3	2	2	–	1		■ ■ ● ● ● ●		
							310	1250	3	A	E	5	3	2	2	–	2		■ ■ ● ● ● ●		
						275	310	800	3	A	E	5	3	5	2	–	1		■ ■ ● ● ● ●		
							310	1250	3	A	E	5	3	5	2	–	2		■ ■ ● ● ● ●		
24	125	50	20	50/52	210	310	800		3	A	E	5	3	2	3	–	1		■ ■ ● ● ● ●		
							310	1250	3	A	E	5	3	2	3	–	2		■ ■ ● ● ● ●		
						275	310	800	3	A	E	5	3	5	3	–	1		■ ■ ● ● ● ●		
							310	1250	3	A	E	5	3	5	3	–	2		■ ■ ● ● ● ●		
24	125	50	25	63/65	210	310	800		3	A	E	5	3	2	4	–	1		■ ■ ● ● ● ●		
							310	1250	3	A	E	5	3	2	4	–	2		■ ■ ● ● ● ●		
						275	310	800	3	A	E	5	3	5	4	–	1		■ ■ ● ● ● ●		
							310	1250	3	A	E	5	3	5	4	–	2		■ ■ ● ● ● ●		
Special version U_d = 55 kV																					– Z E 5	5 [1]
Special version U_d = 65 kV																					– Z E 6	5 [2]
Circuit breaker for installation in NXAIR World [3]																						
24	125	50	25	63/65	210	310	800		3	A	E	5	7	1	4	–	1		■		– Z W 6	3
							310	1000	3	A	E	5	7	1	4	–	0		■		– Z W 6	3
							310	1250	3	A	E	5	7	1	4	–	2		■		– Z W 6	3
Special version U_d = 55 kV																					– Z E 5	5 [1]

1) With special version E55 (selection is possible if 13th position is 0, 1, 2, 3 and 5)
2) With special version E65 (selection is possible if 13th position is 0 and 1)
3) W63 is absolutely necessary as order code

*) Can also be ordered without withdrawable part, see page 37, 13th position

Legend: ● With contact system
■ Without contact system



24 kV

Position: 1 2 3 4 5 6 7 – 8 9–12 | 13th position = Equipment package | 14–16 | Order codes

Article No.: 3 A E 1 ■ ■ ■ – ■ ■ – ■ | ■ – ★ | ■ ■ ■

Positions 9–12: See pages 35 and 36; positions 14–16: See pages 38 to 40; ★: See page 41

Rated voltage for 50/60 Hz U_r kV	Rated lightning impulse voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Rated short-circuit breaking current with 36% DC component I_{sc} kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Pole-center distance mm	Width across flats mm	Rated normal current I_r A	Article No.	Orderable versions: Circuit breaker for fixed mounting, without circuit breaker installation accessories	On withdrawable part	On withdrawable part with complete contact system *	On withdrawable part with complete contact system and bushings *	Withdrawable module without earthing switch	Withdrawable module with earthing switch	Order codes
24	125	50	16	40/42	210	310	800	3AE1322-1	■	■	●	●	●	●	
						310	1250	3AE1322-2	■	■	●	●	●	●	
						310	2000	3AE1322-4	■	■	●	●	●	●	
					275	310	800	3AE1352-1	■	■	●	●	●	●	
						310	1250	3AE1352-2	■	■	●	●	●	●	
						310	2000	3AE1352-4	■	■	●	●	●	●	
24	125	50	20	50/52	210	310	800	3AE1323-1	■	■	●	●	●	●	
						310	1250	3AE1323-2	■	■	●	●	●	●	
						310	2000	3AE1323-4	■	■	●	●	●	●	
						310	2500	3AE1323-6	■	■	●	●	●	●	
					275	310	800	3AE1353-1	■	■	●	●	●	●	
						310	1250	3AE1353-2	■	■	●	●	●	●	
						310	2000	3AE1353-4	■	■	●	●	●	●	
						310	2500	3AE1353-6	■	■	●	●	●	●	
24	125	50	25	63/65	210	310	800	3AE1324-1	■	■	●	●	●	●	
						310	1250	3AE1324-2	■	■	●	●	●	●	
						310	2000	3AE1324-4	■	■	●	●	●	●	
						310	2500	3AE1324-6	■	■	●	●	●	●	
					275	310	800	3AE1354-1	■	■	●	●	●	●	
						310	1250	3AE1354-2	■	■	●	●	●	●	
						310	2000	3AE1354-4	■	■	●	●	●	●	
						310	2500	3AE1354-6	■	■	●	●	●	●	
Special version U_d = 55 kV															– Z E 5 5[1]
Special version U_d = 65 kV															– Z E 6 5[2]
Circuit breaker for installation in NXAIR World [3]															
24	125	50	25	63/65	210	310	1250	3AE1714-2	■						– Z W 6 3
					275	310	2000	3AE1744-4	■						– Z W 6 3
						310	2500	3AE1744-6	■						– Z W 6 3
Special version U_d = 55 kV															– Z E 5 5[1]

1) With special version E55 (selection is possible if 13th position is 0, 1, 2, 3 and 5)

2) With special version E65 (selection is possible if 13th position is 0 and 1)

3) W63 is absolutely necessary as order code

*) Can also be ordered without withdrawable part, see page 37, 13th position

Legend: ● With contact system
■ Without contact system

ВЯРНО С ОРИГИНАЛА

МИГ 23 ЕООД СОФИЯ MIG 23 LTD

2

9th position

Release combination [1]

Position: 1 2 3 4 5 6 7 – 8 9 10 11 12 – 13 14 15 16 Order codes

Article No.: 3 A E ■ ■ ■ ■ – ■ ■ ■ ■ ■ – ■ ■ ■ ■ – ★ ■ ■ ■

1st shunt release	2nd shunt release	3rd shunt release	Undervoltage release	Current-transformer-operated release 0.5 A [2]	Current-transformer-operated release 1.0 A	Current-transformer-operated release with tripping pulse ≥ 0.1 Ws (20 Ω)		See page 36	See page 36	See page 38	See page 39	See page 40	See page 41	
I							A							
							B							
	II					II	B	Not for 3AE1					– Z F 1 5	
					II		C							
							G							
		III					H							
			II				F							
	II						S	Not for 3AE1						
							T	Not for 3AE1						
							T	Not for 3AE1					– Z A 4 6	
							T	Not for 3AE1					– Z A 4 5	
							U	Not for 3AE1						
							V	Not for 3AE1						
							V	Not for 3AE1					– Z A 4 6	
							V	Not for 3AE1					– Z A 4 5	
							E	Not for 3AE5						
							N	Not for 3AE5						
							P	Not for 3AE5						
							Q	Not for 3AE5						
							J	Not for 3AE5						
							L	Not for 3AE5						
							M	Not for 3AE5						

I = position of first release II = position of second release III = position of third release

1) Operating voltage is selected at positions 11 + 12 + order code for 3rd release

2) **Special version** with 5 A c.t.-operated release:
for all circuit breakers (except for retrofit) with 0.5 A c.t.-operated release can be ordered with order code A49 – Z A 4 9

Operating voltage of the 3rd release

Standard voltages		Special voltages		
24 V DC				B/S
48 V DC				B/S
60 V DC				B/S
110 V DC				B/S
220 V DC				B/S
100 V AC	50/60 Hz [3]			B/S
110 V AC	50/60 Hz [3]			B/S
230 V AC	50/60 Hz [3]			B/S
		30 V DC		B/S
		32 V DC		B/S
		120 V DC		B/S
		125 V DC		B/S
		127 V DC		B/S
		240 V DC		B/S
		120 V AC	50/60 Hz [3]	B/S
		125 V AC	50/60 Hz [3]	B/S
		240 V AC	50/60 Hz [3]	B/S

– Z J 8 0	
– Z J 8 3	
– Z J 8 4	
– Z J 8 5	
– Z J 8 9	
– Z J 9 2	
– Z J 9 3	
– Z J 9 7	
– Z J 8 1	
– Z J 8 2	
– Z J 8 6	
– Z J 8 7	
– Z J 8 8	
– Z J 9 0	
– Z J 9 5	
– Z J 9 6	
– Z J 9 8	

3) The AC frequency 50 or 60 Hz is selected at the 16th position of the article number together with the language (see page 40)

Position: 1 2 3 4 5 6 7 – 8 9 10 11 12 – 13 14 15 16 Order codes

Article No.: 3 A E ■ ■ ■ ■ – ■ ■ ■ ■ ■ – ■ ■ ■ ■ – ★ ■ ■ ■

10th position
Operating voltage of the closing solenoid

Standard voltages		Special voltages			
24 V DC				B	See page 38
48 V DC				C	See page 39
60 V DC				D	See page 40
110 V DC				E	
220 V DC				F	
100 V AC	50/60 Hz [1]			H	
110 V AC	50/60 Hz [1]			J	
230 V AC	50/60 Hz [1]			K	
		30 V DC		M	
		32 V DC		N	
		120 V DC		P	
		125 V DC		Q	
		127 V DC		R	
		240 V DC		S	
		120 V AC	50/60 Hz [1]	U	
		125 V AC	50/60 Hz [1]	V	
		240 V AC	50/60 Hz [1]	W	

11th position
Operating voltage of the 1st release

Standard voltages		Special voltages			
C.t.-operated release				0	Not for 3AE5
24 V DC				1	
48 V DC				2	
60 V DC				3	
110 V DC				4	
220 V DC				5	
100 V AC	50/60 Hz [1]			6	
110 V AC	50/60 Hz [1]			7	
230 V AC	50/60 Hz [1]			8	
		30 V DC		9	L 1 A
		32 V DC		9	L 1 B
		120 V DC		9	L 1 C
		125 V DC		9	L 1 D
		127 V DC		9	L 1 E
		240 V DC		9	L 1 F
		120 V AC	50/60 Hz [1]	9	L 1 K
		125 V AC	50/60 Hz [1]	9	L 1 L
		240 V AC	50/60 Hz [1]	9	L 1 M

1) The AC frequency 50 or 60 Hz is selected at the 16th position of the article number together with the language (see page 40)

12th position
Operating voltage of the 2nd release

Position: 1 2 3 4 5 6 7 – 8 9 10 11 12 – 13 14 15 16 Order codes
Article No.: 3 A E ■ ■ ■ ■ – ■ ■ ■ ■ ■ – ■ ■ ■ ■ – + ■ ■ ■

Standard voltages		Special voltages			See page 38	See page 39	See page 40	See page 41	
None or c.t.-operated release				0					
24 V DC				1					
48 V DC				2					
60 V DC				3					
110 V DC				4					
220 V DC				5					
100 V AC	50/60 Hz [1]			6					
110 V AC	50/60 Hz [1]			7					
230 V AC	50/60 Hz [1]			8					
		30 V DC		9					M 1 A
		32 V DC		9					M 1 B
		120 V DC		9					M 1 C
		125 V DC		9					M 1 D
		127 V DC		9					M 1 E
		240 V DC		9					M 1 F
		120 V AC	50/60 Hz [1]	9					M 1 K
		125 V AC	50/60 Hz [1]	9					M 1 L
		240 V AC	50/60 Hz [1]	9					M 1 M

1) The AC frequency 50 or 60 Hz is selected at the 16th position of the article number together with the language (see page 40)

2

13th position
Circuit breaker installation accessories

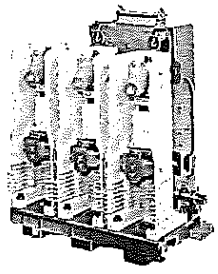
Position:	1	2	3	4	5	6	7	–	8	9	10	11	12	–	13	14	15	16		Order codes		
Article No.:	3	A	E	■	■	■	■	–	■	■	■	■	■	–	■	■	■	■	–	★	■	■	■

Options		See page 38	See page 39	See page 40	See page 41
Circuit breaker for fixed mounting					
Without circuit breaker installation accessories, circuit breaker for fixed mounting	0				
Circuit breaker prepared for separate mounting of withdrawable part					
Without withdrawable part, with contact arms, contacts [1], wiring of withdrawable part (loose delivery)	2			– Z M 2 2	
Without withdrawable part, with contact arms, contacts [1], fixed contacts, bushings, wiring of withdrawable part (supplied loose)	3			– Z M 2 3	
Circuit breaker on withdrawable part					
On withdrawable part	1				
On withdrawable part, with contact arms, contacts [1]	2				
On withdrawable part, with contact arms, contacts [1], fixed contacts, bushings	3				
Withdrawable module					
Circuit breaker on withdrawable part, with cartridge, contact arms, contacts [1], fixed contacts, bushings, shutters	5				
Circuit breaker on withdrawable part, with cartridge, contact arms, contacts [1], fixed contacts, bushings, shutters, earthing switch with short-circuit making capacity	6				

1) Special version: Contact with 13 contact fingers (only up to 1250 A and 31.5 kA) can be ordered with order code Z-M13

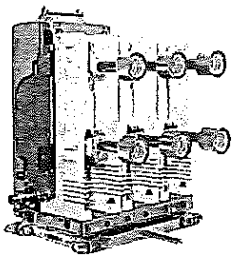
Not for 3AE5

2



R-HG11-379.tif

Example: Circuit breaker for fixed mounting



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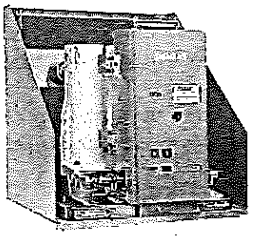
Example: Circuit breaker on withdrawable part with contact arms and contacts



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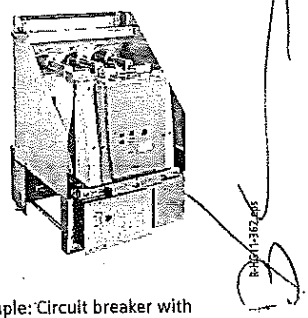
Example: Circuit breaker with withdrawable module



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Example: Circuit breaker with withdrawable module and earthing switch

14th position

Operating voltage of the drive motor

Standard voltages	Special voltages	Position: 1 2 3 4 5 6 7 – 8 9 10 11 12 – 13 14 15 16	Order codes
		Article No.: 3 A E ■ ■ ■ ■ – ■ ■ ■ ■ ■ – ■ ■ ■ ★	■ ■
			S. page 39 S. page 40 S. page 41
24 V DC 1)			B
48 V DC			C
60 V DC			D
110 V DC			E
220 V DC			F
100 V AC 50/60 Hz 1) 2)			H
110 V AC 50/60 Hz 1) 2)			J
230 V AC 50/60 Hz 2)			K
	30 V DC 1)		M
	32 V DC 1)		N
	120 V DC		P
	125 V DC		Q
	127 V DC		R
	240 V DC		S
	120 V AC 50/60 Hz 2)		U
	125 V AC 50/60 Hz 2)		V
	240 V AC 50/60 Hz 2)		W

1) Does not apply to a rated short-circuit breaking current of 40 kA
2) The AC frequency 50 or 60 Hz is selected at the 16th position of the article number together with the language (see page 40)

15th position

Position: 1 2 3 4 5 6 7 – 8 9 10 11 12 – 13 14 15 16 Order codes
Article No.: 3 A E ■ ■ ■ ■ – ■ ■ ■ ■ ■ – ■ ■ ■ ■ – ★ ■ ■ ■

Interlocking, auxiliary switch, circuit breaker tripping signal and low-voltage interface

See page 40

See page 41

If 0 – 6 is selected at the 13th position, circuit breaker/withdrawable module

Mechanical interlocking	Auxiliary switch: 6 NO + 6 NC	Auxiliary switch: 12 NO + 12 NC	Circuit breaker tripping signal	Low-voltage interface: 27-pole terminal strip 1) (for 3AE1) 20-pole connector strip (for 3AE5)	Low-voltage interface: 24-pole plug	Low-voltage interface: 64-pole plug		13	15	Order codes
	■		■	■				0	B	
	■			■				0	D	
	■		■		■			0	F	
	■				■			0	H	
		■	■	■				0	K	
		■		■				0	M	
		■	■			■		0	R	
		■				■		0	Q	
■	■		■	■					A	
■	■			■					C	
■	■		■		■			0	E	
■	■				■			0	G	
■		■	■	■					J	
■		■		■					L	
■		■	■			■			N	
■		■				■			P	
Same as for N, but with 9 NO + 9 NC							Not for 3AE5	0	U	– Z W 6 3

0 – only for circuit- breaker in fixed-mounted design (if 0 at 13th position)

2

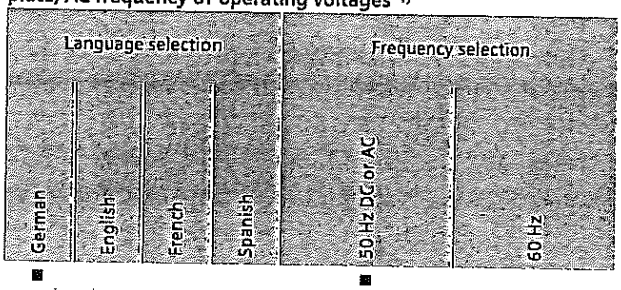
2

16th position

Languages of operating instructions and rating plate; AC frequency of operating voltages [1]

Position: 1 2 3 4 5 6 7 – 8 9 10 11 12 – 13 14 15 16 Order codes

Article No.: 3 A E ■ ■ ■ ■ – ■ ■ ■ ■ ■ – ■ ■ ■ ■ – ■ ■ ■



■	■			0
■				1
	■			2
■	■			3
		■		4
■		■		5
	■	■		6
■	■	■		7
Special versions				
Portuguese, 50 Hz or DC				9 R 1 C
Portuguese, 60 Hz				9 R 1 D
Italian, DC or AC 50 Hz				9 R 1 F
Russian, DC or AC 50 Hz				9 R 1 G
Russian, 60 Hz				9 R 1 H
Polish, DC or AC 50 Hz				9 R 1 K
Other languages on request				9

See page 41

1) AC voltage refers to the low-voltage equipment

Additional equipment

Options	Circuit breaker 13th position = 0, 1, 2, 3	Withdrawable module 13th position = 5, 6	3AE1	3AE5	Order codes
Wire ends with marking at the plug connector	■	■	■	■	– Z A 0 5
Wiring cables halogen-free and flame-retardant	■	■	■	■	– Z A 1 0
"Destination end marking at wire ends + wire end ferrules pulled out without plug (must be ordered with B01 to B08)"	■		■	■	– Z A 1 1
Wiring cables tinned	■		■	■	– Z A 1 2
Flat connector with insulating sleeve	■	■	■	■	– Z A 1 3
gold-plated auxiliary switch 12 NO + 12 NC and 64-pole plug	■	■	■	■	– Z A 2 1
Anti-condensation heating for 110 V AC, 50 W	■	■	■	■	– Z A 2 9
Anti-condensation heating for 230 V AC, 50 W	■	■	■	■	– Z A 3 0
Version free of silicone emissions	■	■	■	■	– Z A 3 1
Circuit breaker for operation at ambient air temperatures down to -25 °C	■	■	■	■	– Z A 4 0
Electrical closing lockout not together with key-operated interlock	■		■	■	– Z A 4 7
C.t.-operated release 5 A	■	■	■	■	– Z A 4 9
Additional rating plate, supplied loose	■		■	■	– Z B 0 0
Cable harness 800 mm, pulled out	■		■	■	– Z B 0 1
Cable harness 500 mm, pulled out	■		■	■	– Z B 0 2
Cable harness 2000 mm, pulled out	■		■	■	– Z B 0 3
Cable harness 1200 mm, pulled out	■		■	■	– Z B 0 4
Cable harness 1500 mm, pulled out	■		■	■	– Z B 0 5
Cable harness 2500 mm, pulled out (not with 24 V DC control voltage)	■		■	■	– Z B 0 6
Cable harness 3000 mm, pulled out (not with 24 V DC control voltage)	■		■	■	– Z B 0 7
Cable harness 3500 mm, pulled out (not with 24 V DC control voltage)	■		■	■	– Z B 0 8
Cable harness of withdrawable part	■		■	■	– Z B 1 3
Sleeve housing PG21/PG29 at pulled out cable harness (B01-B08) for all versions except 13th position = 7	■	■	■	■	– Z B 1 6
Without upper part of plug	■		■	■	– Z B 2 3
Without supplementary equipment	■		■	■	– Z B 2 4
Close-open solenoids with thermo switch (only valid for 60 V/110 V/220 V DC)	■		■		– Z B 4 7
Cable harness with double insulation for ship-building industry	■			■	– Z B 5 8
Special circuit diagram	■		■	■	– Z B 9 9
For aggressive ambient conditions: Gold-plated contacts, tinned pole side, ...	■		■		On request – Z D 2 0
Withdrawable part with 220 mm racking path	■		■	■	– Z D 2 2
Withdrawable part with 200 mm racking path	■		■	■	– Z D 2 3
Withdrawable part with 180 mm racking path	■		■	■	– Z D 2 4
IP plate	■	■		■	– Z D 5 5
Shaft cover	■	■		■	– Z D 5 6
Wide operating mechanism box[1)]				■	– Z D 5 9
Long insulating shell (standard)	■		■	■	– Z D 9 0
Insulating shell (shortened version, for 24 kV)	■		■	■	– Z D 9 1
Insulating shell, width across flats 275 mm for GT system	■			■	– Z D 9 2
Insulating shell for Minis system	■		■	■	– Z D 9 3
Insulating shell to contact arm side (completely shortened)	■			■	– Z D 9 4
Insulating shell to contact arm side (special version for NXAIR World and 3AE5)	■			■	– Z D 9 5
Rated short-duration power-frequency withstand voltage 42 kV (at 12 kV)	■	■	■	■	– Z E 1 3

1) For further options, see page 17

Additional equipment

Options	Circuit breaker 13th position = 0, 1, 2, 3	Withdrawable module 13th position = 5, 6	3AE1	3AE5	Position: Article No.: 1 2 3 4 5 6 7 – 8 9 10 11 12 – 13 14 15 16	Order codes
					3 A E ■ ■ ■ ■ – ■ ■ ■ ■ ■ – ■ ■ ■ ■ – ★	■ ■ ■
Rated short-duration power-frequency withstand voltage 32 kV (at 7.2 kV)	■	■	■	■		– Z E 1 6
Rated short-circuit breaking current I_{sc} = 26.3 kA (only possible with 7.2 kV, 25 kA and 12 kV, 25 kA)	■	■		■		– Z E 4 6
Rated short-duration power-frequency withstand voltage 55 kV (at 24 kV)	■	■	■	■		– Z E 5 5
Rated short-duration power-frequency withstand voltage 65 kV (at 24 kV) [1]	■	■	■	■		– Z E 6 5
Rated lightning impulse voltage 95 kV (at 12 kV)	■	■		■		– Z E 9 5
Routine test certificate enclosed with stamp and passport	■		■	■		– Z F 1 9
Routine test certificate enclosed	■	■	■	■		– Z F 2 0
Routine test certificate with stamp and signature	■	■	■	■		– Z F 2 1
Routine test certificate (to orderer)	■	■	■	■		– Z F 2 3
"Hand crank (for manual charging of the closing spring) (scope of supply: one hand crank per circuit breaker)"	■	■	■	■		– Z F 3 0
Hand crank, long (scope of supply: one hand crank per circuit breaker)	■	■	■	■		– Z F 3 1
"Handle for withdrawable part (for racking the circuit breaker on the withdrawable part) (scope of supply: one handle per circuit breaker). Only required when a withdrawable part is ordered"	■	■	■	■		– Z F 3 2
Handle for earthing switch (for operation of the earthing switch on the withdrawable part) (scope of supply: one handle per circuit breaker). Only required when a withdrawable part with earthing switch is ordered		■	■	■		– Z F 3 4
Rated operating sequence O - 0.3 s - CO - 3 min - CO	■	■	■	■		– Z F 3 8
Guide rails for cartridge			■	■		– Z D 3 5
Break time Y1 ≤ 60 ms at rated voltage	■	■	■	■		– Z G 2 2
Closing time T Close < 55 ms	■	■	■	■		– Z G 2 3
Key-operated interlock (for circuit breakers with mechanical interlocking and without A47)	■	■	■	■		– Z J 6 0
SION plug interlock	■		■			– Z J 6 3
Circuit breaker and withdrawable part for switchgear "MALu 12-24"; only relevant ratings; only with 2 at the 13th position; requires insulating shell D93 at 17.5 kV	■		■	■		– Z J 6 4
Contact with 13 contact fingers (up to 1250 A and 31.5 kA), (selection via 13th position)	■	■	■	■		– Z M 1 3
Frequent operation with up to 30,000 operating cycles. For ≥ 2000 A at ≤ 31.5 kA and ≤ 12 kV or 31.5 kA at 17.5 kV	■		■	■		– Z M 3 0
Warranty 24 months	■		■	■		– Z W 7 0
Warranty 36 months	■		■	■		– Z W 7 1
Warranty 60 months	■		■	■		– Z W 7 2
Additional 84-month warranty	■		■	■		– Z W 7 3
Operating instructions and special labels for USA	■	■	■	■		– Z Y 4 0
Other not listed special design (only after consultation with Order Processing at Switchgear Factory Berlin). Specifications additionally in clear text	■		■	■		– Z Y 9 9

1) AC voltage refers to the secondary side and not to the primary part of the circuit breaker

Ordering information for accessories and spare parts

The article numbers in the spare part overviews are valid for currently manufactured vacuum circuit breakers. When mounting parts or spare parts are being ordered for an existing vacuum circuit breaker, always quote the type designation, serial number and the year of manufacture of the circuit breaker to be sure to get the correct parts.

Retrofitting

When releases / solenoids are retrofitted, the article numbers of the mounting parts must also be specified.
For other additional equipment, the required mounting parts are included in the scope of supply.

Spare parts may only be replaced by qualified personnel.

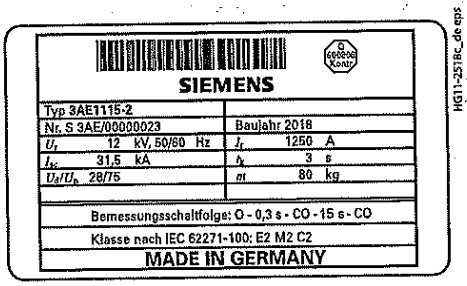
Accessories for the plug connector

Included in the scope of supply of the basic equipment for 3AE vacuum circuit breakers:

For 24-pole plug connector
- Lower part of plug
- Crimp sockets according to number of contacts
- Upper part of plug with screwed contacts (no crimp sockets required)

For 64-pole plug connector
- Lower part of plug
- Upper part of plug
- Crimp sockets according to number of contacts

Rating plate



Note:
The following 3 details are necessary for any query regarding spare parts, subsequent deliveries, etc.:
- Type designation
- Serial No.
- Year of manufacture

Position: 1 – 9

Designation	Description	Feature	Article No.
Handles	Hand crank for circuit breaker		3AX15 30-4B
	Long hand crank for circuit breaker		3AX14 30-2B
	Handle for withdrawable part		3AX14 30-2C
	Handle for earthing switch (for modules up to 31.5 kA)		3AX14 30-2D
	Handle for earthing switch (for 40 kA modules)		3AX14 30-3D
Lubricants	180 g of Klüber-Isoflex Topas L32N		3AX11 33-3H
	1 kg of Klüber-Isoflex Topas L32N		3AX11 33-3E
	1 kg Molykote grease		3AX11 33-2L
	1 kg Vaseline, Atlantic		3AX11 33-4A
Closing solenoid	Used as closing solenoid or 1st shunt release		
	For 3AE1	24 V DC	3AY15 10-5K
	For 3AE1	30/32 V DC	3AY15 10-5M
	For 3AE1	48 V DC	3AY15 10-5C
	For 3AE1	60 V DC	3AY15 10-5D
	For 3AE1	100/124 V DC	3AY15 10-5E
	For 3AE1	125/144 V DC	3AY15 10-5L
	For 3AE1	220/250 V DC	3AY15 10-5F
	For 3AE1	100/125 V AC, 50/60 Hz	3AY15 10-5E
	For 3AE1	230/240 V AC, 50/60 Hz	3AY15 10-5F

2

Designation	Description		Feature	Position: 1 – 9 Article No.
Closing solenoid (continued)	For 3AE5		24 – 32 V DC	3AY14 10-0B
	For 3AE5		48 V DC	3AY14 10-0C
	For 3AE5		60 V DC	3AY14 10-0D
	For 3AE5		110 – 127 V DC	3AY14 10-0E
	For 3AE5		220 – 240 V DC	3AY14 10-0F
	For 3AE5		100/125 V AC, 50/60 Hz	3AY14 10-0J
	For 3AE5		230/240 V AC, 50/60 Hz	3AY14 10-0K
2nd and 3rd Shunt release	For 3AE1 and 3AE5		24 – 32 V DC	3AX11 01-2B
	For 3AE1 and 3AE5		48 – 60 V DC	3AX11 01-2C
	For 3AE1 and 3AE5		110 – 127 V DC	3AX11 01-2E
	For 3AE1 and 3AE5		220 – 240 V DC	3AX11 01-2F
	For 3AE1 and 3AE5		100 – 125 V AC, 50 Hz	3AX11 01-2G
	For 3AE1 and 3AE5		230 – 240 V AC, 50 Hz	3AX11 01-2J
	For 3AE1 and 3AE5		100 – 125 V AC, 60 Hz	3AX11 01-3G
	For 3AE1 and 3AE5		230 – 240 V AC, 60 Hz	3AX11 01-3J
Current-transformer-operated release	For rated normal current 0.5 A	For 3AE1 and 3AE5		3AX11 02-2A
	For rated normal current 1 A	For 3AE1 and 3AE5		3AX11 02-2B
	For tripping impulse ≥ 0.1 Ws, 20 Ω for 7SJ45 protection relay	For 3AE1 and 3AE5		3AX11 04-2B
	For rated normal current 5 A incl. rectifier	For 3AE1		3AX14 02-2D
	For rated normal current 5 A incl. rectifier	For 3AE5		3AX14 02-2E
Mounting parts	For 2nd shunt release / c.t.-operated release	for 3AE1		3AX14 11-2A
		For 3AE5		3AX14 11-5A
	For 2nd and 3rd release	for 3AE5		3AX14 11-5B
Undervoltage release		For 3AE1 and 3AE5	24 V DC	3AX11 03-2B
		For 3AE1 and 3AE5	30/32 V DC	3AX11 03-2L
		For 3AE1 and 3AE5	48 V DC	3AX11 03-2C
		For 3AE1 and 3AE5	60 V DC	3AX11 03-2D
		For 3AE1 and 3AE5	110 V DC	3AX11 03-2E
		For 3AE1 and 3AE5	120/127 V DC	3AX11 03-2N
		For 3AE1 and 3AE5	220 V DC	3AX11 03-2F
		For 3AE1 and 3AE5	240 V DC	3AX11 03-2P
		For 3AE1 and 3AE5	100 V AC, 50 Hz	3AX11 03-2G
		For 3AE1 and 3AE5	110/125 V AC, 50 Hz	3AX11 03-2H
		For 3AE1 and 3AE5	230 V AC, 50 Hz	3AX11 03-2J
		For 3AE1 and 3AE5	240 V AC, 50 Hz	3AX11 03-2M
		For 3AE1 and 3AE5	100 V AC, 60 Hz	3AX11 03-3G
		For 3AE1 and 3AE5	110/125 V AC, 60 Hz	3AX11 03-3H
		For 3AE1 and 3AE5	230 V AC, 60 Hz	3AX11 03-3J
		For 3AE1 and 3AE5	240 V AC, 60 Hz	3AX11 03-3M
Mounting parts	For undervoltage releases	For 3AE1		3AX14 13-2A
		For 3AE5		3AX14 13-5A
Drive motor		For 3AE1	24/30/32 V DC	3AY17 11-2B
		For 3AE1	48 V DC	3AY17 11-2C
		For 3AE1	60 V DC	3AY17 11-2D
		For 3AE1	100/110/125 V DC/AC	3AY17 11-2E
		For 3AE1	220 - 240 V DC 230 - 240 V AC	3AY17 11-2F
		For 3AE5	24/30/32 V DC	3AY14 11-1B
		For 3AE5	48/60 V DC	3AY14 11-1C
		For 3AE5	110 – 127 V DC 100 – 125 V AC	3AY14 11-1E
		For 3AE5	220 – 240 V DC 220 – 240 V AC	3AY14 11-1F

Position: 1 – 9

Designation	Description		Feature	Article No.
Auxiliary contactor	Type 3RH11 22 For anti-pumping	For 3AE1	24 V DC	SWB: 55656
		For 3AE1	30/32 V DC	SWB: 55658
		For 3AE1	48 V DC	SWB: 55659
		For 3AE1	60 V DC	SWB: 55660
		For 3AE1	110 V DC	SWB: 55661
		For 3AE1	120/127 V DC	SWB: 55662
		For 3AE1	220 V DC	SWB: 55663
		For 3AE1	240/250 V DC	SWB: 55665
		For 3AE1	110 V AC, 50/60 Hz	SWB: 55666
		For 3AE1	120 V AC, 50/60 Hz	SWB: 55667
		For 3AE1	125 V AC, 50/60 Hz	SWB: 55668
		For 3AE1	230 V AC, 50/60 Hz	SWB: 55669
		For 3AE1	240 V AC, 50/60 Hz	SWB: 55670
Electronic module	For 3AE5		24 – 60 V DC	3AY14 20-1B
			110 – 240 V DC 100 – 240 V AC	3AY14 20-1E
Position switches	Type SE4 without mounting accessories			3AX42 06-0A
	Used for:		Quantity	
	– Electrical anti-pumping (-S3)		1	
	– Electrical interlocking (-S12)		1	
	– Motor control (-S21, -S22)		2	
	– Closing spring charged (-S4)		1	
	– Circuit breaker tripping signal (-S6)		1	
	– Electrical closing lock-out (-S5)		1	
	– Withdrawable part (-S1.0 to -S1.9)		10	
	- Key-operated interlock		1	
Auxiliary switches (-S1)	6 NO + 6 NC			3SV92 73-2AA0
	12 NO + 12 NC			3SV92 74-2AA0
Mechanical interlocking		for 3AE1		3AX14 20-2A
		For 3AE1	≤ 12 kV ≤ 25 kA ≤ 1250 A	3AX14 20-2B
Key-operated interlocking		For 3AE1		3AX14 37-3A
		For 3AE1	≤ 12 kV ≤ 25 kA ≤ 1250 A	3AX14 37-3B
	Mounting kit	for 3AE5		3AX14 37-4A
Accessories for Plug connection	Crimp pins (for conductor cross-section 1.5 mm)	For 3AE1 and 3AE5	24-pole	3AX11 34-3A
	Crimp pins (for lower part of plug)	For 3AE1 and 3AE5	64-pole	3AX11 34-4B
	Crimp sockets (for upper part of plug)	For 3AE1 and 3AE5	64-pole	3AX11 34-4C
	Crimping pliers	For 3AE1 and 3AE5		3AX11 34-4D
	Disassembly tool	For 3AE1 and 3AE5		3AX11 34-4G
	Plug connection, complete	For 3AE1 and 3AE5	24-pole	3AX11 34-7A
		For 3AE1 and 3AE5	64-pole	3AX11 34-6A
	Plug connection (lower part)	For 3AE1 and 3AE5	24-pole	3AX11 34-5D
	Plug connection (upper part)	For 3AE1 and 3AE5	24-pole	3AX11 34-5C
	Plug connection (lower part)	For 3AE1 and 3AE5	64-pole	3AX11 34-5B
	Plug connection (upper part)	For 3AE1 and 3AE5	64-pole	3AX11 34-5A
Electrical closing lock-out		For 3AE1 and 3AE5	24 V DC	3AX14 05-2B
		For 3AE1 and 3AE5	30/32 V DC	3AX14 05-2K
		For 3AE1 and 3AE5	48 V DC	3AX14 05-2C
		For 3AE1 and 3AE5	60 V DC	3AX14 05-2D
		For 3AE1 and 3AE5	100/127 V DC	3AX14 05-2E
		For 3AE1 and 3AE5	220/240 V DC	3AX14 05-2F
		For 3AE1 and 3AE5	100 V AC, 50/60 Hz	3AX14 05-2G
		For 3AE1 and 3AE5	100/125 V AC, 50/60 Hz	3AX14 05-2H
		For 3AE1 and 3AE5	220/240 V AC, 50/60 Hz	3AX14 05-2J
Mounting parts	For electrical closing lock-out	For 3AE1		3AX14 15-2A
		For 3AE1	≤ 12 kV ≤ 25 kA ≤ 1250 A	3AX14 15-2L
		For 3AE5		3AX14 15-3A
	Circuit breaker tripping signal	For 3AE1		3AX14 16-2A

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ВЯРНО С ОРИГИНАЛА

МГ 23 ЕООД СОФИЯ MG 23 LTD

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Designation	Description		Feature	Position: 1 – 9 Article No.
Bushing complete	Pole-center distance: 150/160 mm	for	7.2 to 17.5 kV, 800 to 1600 A, up to 31.5 kA	3AX14 52-2A
	Pole-center distance: 210 mm	for	7.2 to 17.5 kV, 800 to 1600 A, up to 31.5 kA	3AX14 52-2B
	Pole-center distance: 210 mm	for	7.2 to 17.5 kV, 2000 to 2500 A, up to 31.5 kA	3AX14 52-2C
	Pole-center distance: 210 mm	for	24 kV, 800 to 1250 A, up to 25 kA	3AX14 52-2D
	Pole-center distance: 210 mm	for	24 kV, 2000 to 2500 A, up to 25 kA	3AX14 52-2E
	Pole-center distance: 275 mm	for	24 kV, 800 to 1250 A, up to 25 kA	3AX14 52-2F
	Pole-center distance: 275 mm	for	24 kV, 2000 to 2500 A, up to 25 kA	3AX14 52-2G
	Pole-center distance: 210/275 mm	for	7.2 to 17.5 kV, 1250 to 3150 A, 40 kA	3AX14 52-2H
Top cover for SION 3AE1	Top cover 150/160 mm pole-center distance		13th position = 0	3AX14 70-1A
			13th position – 1 – 6	3AX14 70-1B
			13th position – 1 – 6 with preparation for key-operated interlock (J60)	3AX14 70-1C
			13th position – 0 (neutral)	3AX14 70-1E
			13th position – 1 – 6 (neutral)	3AX14 70-1F
	Top cover 210 mm pole-center distance		13th position = 0	3AX14 70-2A
			13th position – 1 – 6	3AX14 70-2B
			13th position – 1 – 6 with preparation for key-operated interlock (J60)	3AX14 70-2C
			13th position – 0 (neutral)	3AX14 70-2E
			13th position – 1 – 6 (neutral)	3AX14 70-2F
	Top cover 275 mm pole-center distance		13th position = 0	3AX14 70-3A
			13th position – 1 – 6	3AX14 70-3B
			13th position – 1 – 6 with preparation for key-operated interlock (J60)	3AX14 70-3C
			13th position – 0 (neutral)	3AX14 70-3E
			13th position – 1 – 6 (neutral)	3AX14 70-3F
	Side cover 210 mm pole-center distance			3AX14 70-2S
	Side cover 275 mm pole-center distance			3AX14 70-3S
	Cover of low-voltage interface			3AX14 70-0H
Top cover for SION 3AE5	Plastic cover, standard			3AX14 70-5A
	Plastic cover, neutral			3AX14 70-5B
	Metal cover, PCD 150 mm	For 3AE5		3AX14 70-5C
	Metal cover, PCD 160 mm	For 3AE5		3AX14 70-5D
	Metal cover, PCD 210 mm	For 3AE5		3AX14 70-5E
	Metal cover, PCD 275 mm	For 3AE5		3AX14 70-5F
Insulating shell towards contact arm side, for standard circuit breakers only for additional screening in case of narrow installation	Standard version, width across flats 310 mm	For 3AE1	7.2 to 17.5 kV (≤ 31.5 kA)	3AX14 38-2A
	Standard version, width across flats 310 mm (Minis)	For 3AE1	7.2 to 17.5 kV (≤ 31.5 kA)	3AX14 38-4H
	Standard version, width across flats 310 mm	For 3AE1	7.2 to 17.5 kV (40 kA)	3AX14 38-2E
	Standard version, width across flats 275 mm	For 3AE1	7.2 to 17.5 kV	3AX14 38-2C
	Standard version, width across flats 205 mm	For 3AE1	7.2 to 17.5 kV	3AX14 38-2D
	Standard version, width across flats 205 mm (Minis)	For 3AE1	7.2 up to 17.5 kV (≤ 31.5 kA)	3AX14 38-4K
	Standard version, width across flats 310 mm	For 3AE1	24 kV	3AX14 38-2B
	Standard version, width across flats 310 mm	For 3AE1	24 kV	3AX14 38-3B
	Standard version, width across flats 310 mm	For 3AE5	7.2 to 12 kV (≤ 25 kA ≤ 1250 A)	3AX14 38-5A
	Shortened version, width across flats 310 mm	For 3AE5	7.2 to 12 kV (≤ 25 kA ≤ 1250 A)	3AX14 38-6A
	Shortened version, width across flats 310 mm (Minis)	For 3AE5	7.2 to 12 kV (≤ 25 kA ≤ 1250 A)	3AX14 38-7A
	Standard version, width across flats 275 mm	For 3AE5	7.2 to 12 kV (≤ 25 kA ≤ 1250 A)	3AX14 38-5C
	Shortened version, width across flats 275 mm	For 3AE5	7.2 to 12 kV (≤ 25 kA ≤ 1250 A)	3AX14 38-6C
	Standard version, width across flats 205 mm	For 3AE5	7.2 to 12 kV (≤ 25 kA ≤ 1250 A)	3AX14 38-5D
	Shortened version, width across flats 205 mm	For 3AE5	7.2 to 12 kV (≤ 25 kA ≤ 1250 A)	3AX14 38-6D
	Shortened version, width across flats 205 mm (Minis)	For 3AE5	7.2 to 12 kV (≤ 25 kA ≤ 1250 A)	3AX14 38-7D
	Standard version, width across flats 310 mm	For 3AE5	7.2 to 12 kV (31.5 kA ≤1600 A)/17.5 kV (25 kA)	3AX14 38-5K
	Shortened version, width across flats 310 mm (Minis)	For 3AE5	7.2 to 12 kV (31.5 kA ≤1600 A)/17.5 kV (25 kA)	3AX14 38-7K
	Shortened version, width across flats 310 mm	For 3AE5	7.2 to 12 kV (31.5 kA ≤1600 A)/17.5 kV (25 kA)	3AX14 38-6K
	Standard version, width across flats 275 mm	For 3AE5	7.2 to 12 kV (31.5 kA ≤1600 A)/17.5 kV (25 kA)	3AX14 38-5H
	Shortened version, width across flats 275 mm	For 3AE5	7.2 to 12 kV (31.5 kA ≤1600 A)/17.5 kV (25 kA)	3AX14 38-6H
	Standard version, width across flats 205 mm	For 3AE5	7.2 to 12 kV (31.5 kA ≤1600 A)/17.5 kV (25 kA)	3AX14 38-5J

Position: 1 – 9

Designation	Description		Feature	Article No.
	Shortened version, width across flats 205 mm	For 3AE5	7.2 to 12 kV (31.5 kA≤1600 A)/17.5 kV (25 kA)	3AX14 38-6J
	Shortened version, width across flats 205 mm (Minis)	For 3AE5	7.2 to 12 kV (31.5 kA≤1600 A)/17.5 kV (25 kA)	3AX14 38-7H
Insulating shell towards contact arm side, for standard circuit breakers only for additional screening in case of narrow installation (continued)	Shortened version, width across flats 205 mm (Ritter)	For 3AE5	7.2 to 12 kV (≤ 31.5 kA ≤ 1600 A)/17.5 kV (25 kA)	3AX14 38-5N
	Standard version (top)	For 3AE5	24 kV	3AX14 38-4B
	Standard version (bottom)	For 3AE5	24 kV	3AX14 38-5B
	Standard version for NXAIR	For 3AE5	7.2 to 12 kV (≤ 25 kA ≤ 1250A)	3AX14 38-5F
	Shortened version for NXAIR	For 3AE5	7.2 to 12 kV (≤ 25 kA ≤ 1250A)	3AX14 38-6F
	Special version for NXAIR (for D95)	For 3AE5	7.2 to 12 kV (≤ 25 kA ≤ 1250A)	3AX14 38-5Q
	Standard version for NXAIR	For 3AE5	7.2 to 12 kV (31.5 kA ≤ 1600 A)/17.5 kV (25 kA)	3AX14 38-6M
	Shortened version for NXAIR	For 3AE5	7.2 to 12 kV (31.5 kA ≤ 1600 A)/17.5 kV (25 kA)	3AX14 38-5M
	Special version for NXAIR (for D95)	For 3AE5	7.2 to 12 kV (31.5 kA ≤ 1600 A)/17.5 kV (25 kA)	3AX14 38-5P
	Shortened version for NXAIR (top)	For 3AE5	24 kV	3AX14 38-6B
	Shortened version for NXAIR (bottom)	For 3AE5	24 kV	3AX14 38-8B
Gate for cartridge	Shortened version			3AX14 52-2B
Contact system	26 contact fingers	For 3AE1 and 3AE5	7.2/12/24 kV, 800 to 1250 A	3AX14 42-2A
	26 contact fingers	For 3AE1 and 3AE5	17.5 kV, 800 to 1250 A	3AX14 42-2B
	26 contact fingers	For 3AE1 and 3AE5	7.2/12/24 kV, up to 3150 A	3AX14 42-2C
	26 contact fingers	For 3AE1 and 3AE5	17.5 kV, up to 3150 A	3AX14 42-2D
	13 contact fingers	For 3AE1 and 3AE5	7.2/12/24 kV, 800 to 1250 A	3AX14 42-2E
	13 contact fingers	For 3AE1 and 3AE5	17.5 kV, 800 to 1250 A	3AX14 42-2F
Contact arm, complete with contact system	Width across flats: all	Contact fingers: 26 For 3AE1	7.2/12 kV, up to 31.5 kA, up to 1250 A	3AX14 43-2A
	Width across flats: all	Contact fingers: 26 For 3AE1	7.2/12 kV, up to 31.5 kA, up to 2500 A	3AX14 43-2B
	Width across flats: all	Contact fingers: 26 For 3AE1	17.5 kV, up to 31.5 kA, up to 1250 A	3AX14 43-2C
	Width across flats: all	Contact fingers: 26 For 3AE1	17.5 kV, up to 31.5 kA, up to 2500 A	3AX14 43-2D
	Width across flats: all	Contact fingers: 26 For 3AE1	24 kV, up to 25 kA, up to 1250 A	3AX14 43-2E
	Width across flats: all	Contact fingers: 26 For 3AE1	24 kV, up to 25 kA, up to 2500 A	3AX14 43-2F
	Width across flats: all	Contact fingers: 26 For 3AE1	7.2/12 kV, 40 kA, up to 1250 A	3AX14 43-2G
	Width across flats: all	Contact fingers: 26 For 3AE1	7.2/12 kV, 40 kA, up to 3150 A	3AX14 43-2H
	Width across flats: all	Contact fingers: 26 For 3AE1	17.5 kV, 40 kA, up to 1250 A	3AX14 43-2J
	Width across flats: all	Contact fingers: 26 For 3AE1	17.5 kV, 40 kA, up to 3150 A	3AX14 43-2K
	Width across flats: all	Contact fingers: 13 for 3AE1	7.2/12 kV, up to 31.5 kA, up to 1250 A	3AX14 43-2L
	Width across flats: all	Contact fingers: 13 for 3AE1	17.5 kV, up to 31.5 kA, up to 1250 A	3AX14 43-2M
	Width across flats: all	Contact fingers: 13 for 3AE1 and 3AE5	24 kV, up to 25 kA, up to 1250 A	3AX14 43-2N
	Width across flats: all	Contact fingers: 26 for 3AE5	7.2/12 kV, up to 31.5 kA, up to 1600 A	3AX14 43-2P
	Width across flats: all	Contact fingers: 26 for 3AE5	17.5 kV, up to 25 kA, up to 1600 A	3AX14 43-2Q
	Width across flats: all	Contact fingers: 13 for 3AE5	7.2/12 kV, up to 31.5 kA, up to 1250 A	3AX14 43-2R
	Width across flats: all	Contact fingers: 13 for 3AE5	17.5 kV, up to 25 kA, up to 1250 A	3AX14 43-2S
	Width across flats: 205 mm	Contact fingers: 26 For 3AE1 (Minis)	7.2/12 kV, up to 31.5 kA, up to 1250 A	3AX14 43-4A
	Width across flats: 310 mm	Contact fingers: 26 For 3AE1 (Minis)	7.2/12 kV, up to 31.5 kA, up to 2500 A	3AX14 43-4B
	Width across flats: 205 mm	Contact fingers: 26 For 3AE1 (Minis)	17.5 kV, up to 31.5 kA, up to 1250 A	3AX14 43-4C
	Width across flats: 310 mm	Contact fingers: 26 For 3AE1 (Minis)	17.5 kV, up to 31.5 kA, up to 2500 A	3AX14 43-4D
	Width across flats: 310 mm	Contact fingers: 26 For 3AE1 (Minis)	7.2/12 kV, up to 31.5 kA, up to 1250 A	3AX14 43-4T
	Width across flats: 310 mm	Contact fingers: 26 For 3AE1 (Minis)	17.5 kV, up to 31.5 kA, up to 1250 A	3AX14 43-4U
	Width across flats: 310 mm	Contact fingers: 26 For 3AE1 (Minis)	7.2/12 kV, 40 kA, up to 1250 A	3AX14 43-4G
	Width across flats: 310 mm	Contact fingers: 26 For 3AE1 (Minis)	7.2/12 kV, 40 kA, up to 3150 A	3AX14 43-4H
	Width across flats: 310 mm	Contact fingers: 26 For 3AE1 (Minis)	17.5 kV, 40 kA, up to 1250 A	3AX14 43-4J
	Width across flats: 310 mm	Contact fingers: 26 For 3AE1 (Minis)	17.5 kV, 40 kA, up to 3150 A	3AX14 43-4K
	Width across flats: 205 mm	Contact fingers: 13 For 3AE1 (Minis)	7.2/12 kV, up to 31.5 kA, up to 1250 A	3AX14 43-4L
	Width across flats: 205 mm	Contact fingers: 13 For 3AE1 (Minis)	17.5 kV, up to 31.5 kA, up to 1250 A	3AX14 43-4M

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Position:				1 – 9
Designation	Description		Feature	Article No.
Contact arm, complete with contact system (continued)	Width across flats: 310 mm	Contact fingers: 13 For 3AE1 (Minis)	7.2/12 kV, up to 31.5 kA, up to 1250 A	3AX14 43-4V
	Width across flats: 310 mm	Contact fingers: 13 For 3AE1 (Minis)	17.5 kV, up to 31.5 kA, up to 1250 A	3AX14 43-4W
	Width across flats: 205 mm	Contact fingers: 26 For 3AE5 (Minis)	7.2/12 kV, up to 31.5 kA, up to 1250 A	3AX14 43-5A
	Width across flats: 205 mm	Contact fingers: 26 For 3AE5 (Minis)	17.5 kV, up to 25 kA, up to 1250 A	3AX14 43-5B
	Width across flats: 205 mm	Contact fingers: 13 For 3AE5 (Minis)	7.2/12 kV, up to 31.5 kA, up to 1250 A	3AX14 43-5C
	Width across flats: 205 mm	Contact fingers: 13 For 3AE5 (Minis)	17.5 kV, up to 25 kA, up to 1250 A	3AX14 43-5D
	Width across flats: 310 mm	Contact fingers: 26 For 3AE5 (Minis)	7.2/12 kV, up to 31.5 kA, up to 1600 A	3AX14 43-5G
	Width across flats: 310 mm	Contact fingers: 26 For 3AE5 (Minis)	17.5 kV, up to 25 kA, up to 1600 A	3AX14 43-5H
	Width across flats: 310 mm	Contact fingers: 13 For 3AE5 (Minis)	7.2/12 kV, up to 31.5 kA, up to 1600 A	3AX14 43-5J
	Width across flats: 310 mm	Contact fingers: 13 For 3AE5 (Minis)	17.5 kV, up to 25 kA, up to 1600 A	3AX14 43-5K
Fixed contact	For 3AE1 and 3AE5		7.2/12/17.5 kV, up to 31.5 kA, up to 1250 A	3AX14 44-2A
	For 3AE1 and 3AE5		7.2/12/17.5 kV, up to 31.5 kA, up to 2500 A 7.2/12/17.5 kV, 40 kA, up to 3150 A	3AX14 44-2B
	For 3AE1 and 3AE5		7,2/12/17.5 kV, 40 kA, up to 3150 A (Minis)	3AX14 44-2D
	For 3AE1 and 3AE5		24 kV, up to 25 kA, up to 2500 A	3AX14 44-2C
Conductor bars (1 set each) for earthing switch connection	For 3AE1 and 3AE5			
	150/210 mm pole-center distance, 275 mm width across flats		7.2/12/17.5 kV, up to 31.5 kA, up to 1250 A	3AX14 55-2A
	150 mm pole-center distance, 310 mm width across flats		7.2/12/17.5 kV, up to 31.5 kA, up to 1250 A	3AX14 55-2A
	210 mm pole-center distance, 310 mm width across flats		7.2/12/17.5 kV, up to 31.5 kA, up to 1250 A	3AX14 55-2B
	210 mm pole-center distance, 310 mm width across flats		7.2/12/17.5 kV, up to 31.5 kA, up to 2500 A	3AX14 55-2C
	210 mm pole-center distance, 310 mm width across flats		7.2/12/17.5 kV, 40 kA, up to 3150 A	3AX14 55-2D
	210 mm pole-center distance, 310 mm width across flats		24 kV, up to 25 kA, up to 2150 A	3AX14 55-2E
	275 mm pole-center distance, 310 mm width across flats		24 kV, up to 25 kA, up to 2150 A	3AX14 55-2F
	210 mm pole-center distance, 310 mm width across flats		24 kV, up to 25 kA, up to 2500 A	3AX14 55-2G
	275 mm pole-center distance, 310 mm width across flats		24 kV, up to 25 kA, up to 2500 A	3AX14 55-2H
Metal protection plate (IP plate)	150 mm pole-center distance and $I_{sc} \leq 25$ kA		For 3AE5	3AX14 56-0A
	160 mm pole-center distance and $I_{sc} \leq 25$ kA		For 3AE5	3AX14 56-0B
	210 mm pole-center distance		For 3AE5	3AX14 56-0C
	275 mm pole-center distance		For 3AE5	3AX14 56-0D
	150 mm pole-center distance and $I_{sc} = 31.5$ kA		For 3AE5	3AX14 56-1A
	160 mm pole-center distance and $I_{sc} = 31.5$ kA		For 3AE5	3AX14 56-1B
Shaft cover	150/160 mm pole-center distance		For 3AE5	3AX14 66-0A
	150 mm pole-center distance (Ritter)		For 3AE5	3AX14 66-0C
	210 mm pole-center distance		For 3AE5	3AX14 66-0B
	275 mm pole-center distance		For 3AE5	3AX14 66-0D
PG cable gland			For 3AE1 and 3AE5	3AX14 58-0A
Protection against condensed water	Anti-condensation heating for 230 V AC, 50 W		For 3AE1	3AX14 57-3A
	Anti-condensation heating for 110 V AC, 50 W		For 3AE1	3AX14 57-3B
	Anti-condensation heating for 230 V AC, 50 W		For 3AE5	3AX14 57-5A
	Anti-condensation heating for 110 V AC, 50 W		For 3AE5	3AX14 57-5B

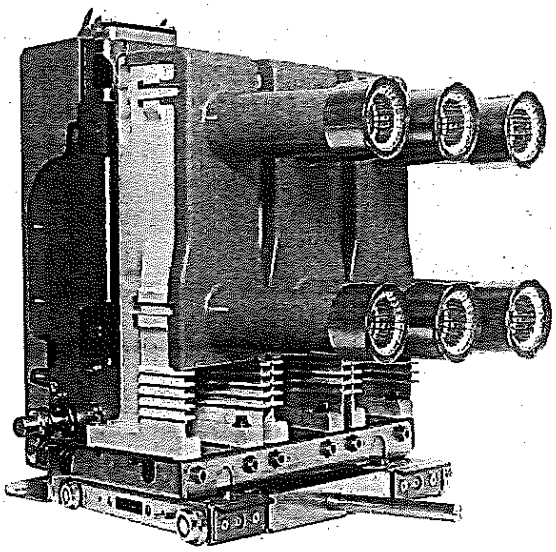
Designation	Description: Rated voltage for 50/60 Hz U_r kV	Rated short-circuit breaking current I_{sc} with 36% DC component kA	Pole-center distance mm	Width across flats mm	I_r Rated normal current A	Travel/ feature	Position: 1 – 9 Article No.	10 Language code *
Withdrawable part	≤ 17.5		150/160			180/without cable harness	3AX71 12-2E	■
	≤ 17.5		150/160			180/with cable harness for 3AE1	3AX71 12-3E	■
	≤ 17.5		150/160			180/with cable harness for 3AE5	3AX71 12-4E	■
	≤ 17.5		150/160			200 / without cable harness	3AX71 12-2G	■
	≤ 17.5		150/160			200 / with cable harness for 3AE1	3AX71 12-3G	■
	≤ 17.5		150/160			200 / with cable harness for 3AE5	3AX71 12-4G	■
	≤ 17.5		150/160			220/without cable harness	3AX71 12-2A	■
	≤ 17.5		150/160			220/with cable harness for 3AE1	3AX71 12-3A	■
	≤ 17.5		150/160			220/with cable harness for 3AE5	3AX71 12-4A	■
	≤ 17.5		200			200 / without cable harness	3AX71 12-2H	■
	≤ 17.5		200			200 / with cable harness for 3AE1	3AX71 12-3H	■
	≤ 17.5		210			180/without cable harness	3AX71 12-2F	■
	≤ 17.5		210			180/with cable harness for 3AE1	3AX71 12-3F	■
	≤ 17.5		210			180/with cable harness for 3AE5	3AX71 12-4F	■
	≤ 17.5		210			200 / with cable harness for 3AE5	3AX71 12-4H	■
	≤ 17.5		210			220/without cable harness	3AX71 12-2B	■
	≤ 17.5		210			220/with cable harness for 3AE1	3AX71 12-3B	■
	≤ 17.5		210			220/with cable harness for 3AE5	3AX71 12-4B	■
	24		210			260/without cable harness	3AX71 12-2C	■
	24		210			260/with cable harness for 3AE1	3AX71 12-3C	■
	24		210			260 / with cable harness for 3AE5	3AX71 12-4C	■
	24		275			260/without cable harness	3AX71 12-2D	■
	24		275			260/with cable harness for 3AE1	3AX71 12-3D	■
	24		275			260 / with cable harness for 3AE5	3AX71 12-4D	■
Cartridge without earthing switch	≤ 17.5	≤ 31.5	150	275	≤ 1250		3AX71 11-5A	■
	≤ 17.5	≤ 31.5	150	310	≤ 1250		3AX71 11-5B	■
	≤ 17.5	≤ 31.5	210	275	≤ 1250		3AX71 11-5C	■
	≤ 17.5	≤ 31.5	210	310	≤ 1250		3AX71 11-5D	■
	≤ 17.5	≤ 31.5	210	310	> 1250		3AX71 11-5G	■
	≤ 17.5	40	210	310	All I_r		3AX71 11-5H	■
	24	≤ 25	210	310	≤ 1250		3AX71 11-5E	■
	24	≤ 25	275	310	≤ 1250		3AX71 11-5F	■
	24	≤ 25	210	310	> 1250		3AX71 11-5J	■
	24	≤ 25	275	310	> 1250		3AX71 11-5K	■

2

Designation	Description					Travel/ feature	Position: 1 to 9 Article No.	10 Language code *)
	Rated voltage for 50/60 Hz U_r kV	Rated short-circuit breaking current with 36% DC component I_{sc} kA	Pole-center distance mm	Width across flats mm	Rated normal current I_r A			
Cartridge with earthing switch	≤ 17.5	≤ 31.5	150	275	≤ 1250	with partition	3AX71 11-6A	■
	≤ 17.5	≤ 31.5	150	310	≤ 1250	with partition	3AX71 11-6B	■
	≤ 17.5	≤ 31.5	210	275	≤ 1250	without partition	3AX71 11-6C	■
	≤ 17.5	≤ 31.5	210	310	≤ 1250	without partition	3AX71 11-6D	■
	≤ 17.5	≤ 31.5	210	310	> 1250	without partition	3AX71 11-6G	■
	≤ 17.5	40	210	310	All I_r	without partition	3AX71 11-6H	■
	24	≤ 25	210	310	≤ 1250	with partition	3AX71 11-6E	■
	24	≤ 25	275	310	≤ 1250	with partition	3AX71 11-6J	■
	24	≤ 25	210	310	> 1250	without partition	3AX71 11-6F	■
	24	≤ 25	275	310	> 1250	without partition	3AX71 11-6K	■

*) The language of the rating plate is stated in the table. The individual code has to be added to the article number.

A	German
B	English
C	French
D	Spanish
E	Italian
F	Russian
G	Portuguese
H	Polish
Z	Open with Z = ...



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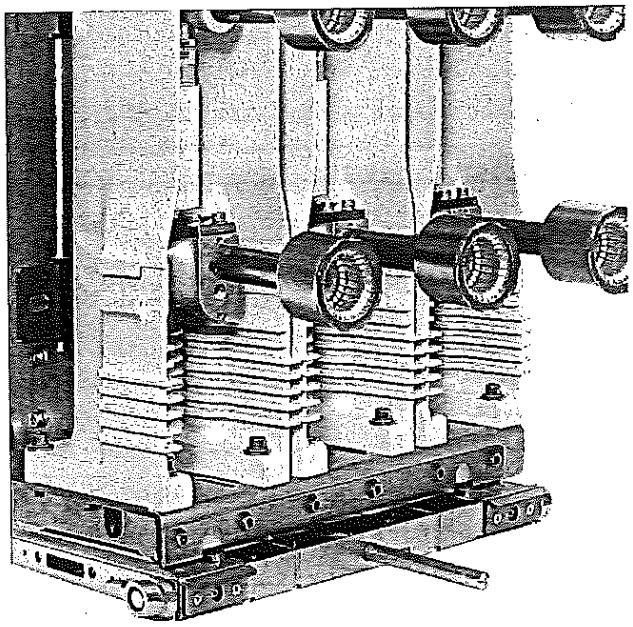
SION vacuum circuit breaker on withdrawable part, with contacts



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SION vacuum circuit breaker on withdrawable part, with contacts

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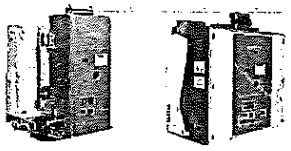


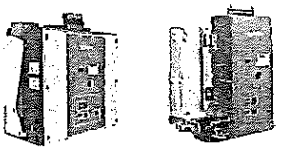
7.2 kV 50/60 Hz Article No.	I_r Rated normal current A	Width across flats mm	Pole-center distance mm	Rated switching sequence O – 0.3 s – CO – 15 s – CO	t_k Rated short-circuit duration s	I_k Rated short-circuit breaking current kA	DC component in % of the rated short-circuit breaking current %	Asymmetric breaking current kA	I_{ma} Rated short-circuit making current (at 50/60 Hz) kA	I_{bi} Rated back-to-back capacitor-bank inrush making current kA, peak	U_p Rated lightning impulse voltage kV	U_a Rated short-duration power-frequency withstand voltage kV	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC) mV	Minimum creepage distance Interrupters mm	Minimum creepage distance Phase-to-earth mm	Minimum clearance Phase-to-phase mm	Minimum clearance Phase-to-earth mm	Mass 1) (fixed-mounted circuit breaker/withdrawable module) kg	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram no. (see page 58)
3AE5 002-1...	800	205	150	■	3	16	50	17.9	40/42	▲	60	20	3	93	245	93	97	49/–	A7E44202010	1
3AE5 002-2...	1250	205	150	■	3	16	50	17.9	40/42	▲	60	20	3	93	245	93	97	49/–	A7E44202010	1
3AE5 003-1...	800	205	150	■	3	20	50	22.4	50/52	▲	60	20	3	93	245	93	97	49/–	A7E44202010	2
3AE5 003-2...	1250	205	150	■	3	20	50	22.4	50/52	▲	60	20	3	93	245	93	97	49/–	A7E44202010	2
3AE5 004-1...	800	205	150	■	3	25	50	28	63/65	▲	60	20	3	93	245	93	97	49/–	A7E44202010	3a
3AE5 004-2...	1250	205	150	■	3	25	50	28	63/65	▲	60	20	3	93	245	93	97	49/–	A7E44202010	3a
3AE5 005-1...	800	205	150	■	3	31.5	50	35.4	80/82	20	60	20	2.5	90	255	98	97	53.5/–	A7E44202010	4a
3AE5 005-2...	1250	205	150	■	3	31.5	50	35.4	80/82	20	60	20	2.5	90	255	98	97	53.5/–	A7E44202010	4a
3AE5 012-1...	800	275	150	■	3	16	50	17.9	40/42	▲	60	20	3	93	245	93	97	49/85	A7E44202011	1
3AE5 012-2...	1250	275	150	■	3	16	50	17.9	40/42	▲	60	20	3	93	245	93	97	49/85	A7E44202011	1
3AE5 013-1...	800	275	150	■	3	20	50	22.4	50/52	▲	60	20	3	93	245	93	97	49/85	A7E44202011	2
3AE5 013-2...	1250	275	150	■	3	20	50	22.4	50/52	▲	60	20	3	93	245	93	97	49/85	A7E44202011	2
3AE5 014-1...	800	275	150	■	3	25	50	28	63/65	▲	60	20	3	93	245	93	97	49/85	A7E44202011	3a
3AE5 014-2...	1250	275	150	■	3	25	50	28	63/65	▲	60	20	3	93	245	93	97	49/85	A7E44202011	3a
3AE5 015-1...	800	275	150	■	3	31.5	50	35.4	80/82	20	60	20	2.5	90	255	98	122	53.5/89.5	A7E44202011	4a
3AE5 015-2...	1250	275	150	■	3	31.5	50	35.4	80/82	20	60	20	2.5	90	255	98	122	53.5/89.5	A7E44202011	4a
3AE5 022-1...	800	310	150	■	3	16	50	17.9	40/42	▲	60	20	3	93	245	93	97	49/85	A7E44202012	1
3AE5 022-2...	1250	310	150	■	3	16	50	17.9	40/42	▲	60	20	3	93	245	93	97	49/85	A7E44202012	1
3AE5 022-3...	1600	310	150	■	3	16	50	17.9	40/42	20	60	20	2.5	90	255	98	122	59.5/95.5	A7E44202011	1a
3AE5 023-1...	800	310	150	■	3	20	50	22.4	50/52	▲	60	20	3	93	245	93	97	49/85	A7E44202012	2
3AE5 023-2...	1250	310	150	■	3	20	50	22.4	50/52	▲	60	20	3	93	245	93	97	49/85	A7E44202012	2
3AE5 023-3...	1600	310	150	■	3	20	50	22.4	50/52	20	60	20	2.5	90	255	98	122	59.5/95.5	A7E44202012	2a
3AE5 024-1...	800	310	150	■	3	25	50	28	63/65	▲	60	20	3	93	245	93	97	49/85	A7E44202012	3a
3AE5 024-2...	1250	310	150	■	3	25	50	28	63/65	▲	60	20	3	93	245	93	97	49/85	A7E44202012	3a
3AE5 024-3...	1600	310	150	■	3	25	50	28	63/65	20	60	20	2.5	90	255	98	122	59.5/95.5	A7E44202012	3b
3AE5 025-1...	800	310	150	■	3	31.5	50	35.4	80/82	20	60	20	2.5	90	255	98	122	53.5/89.5	A7E44202012	4a
3AE5 025-2...	1250	310	150	■	3	31.5	50	35.4	80/82	20	60	20	2.5	90	255	98	122	53.5/89.5	A7E44202012	4a
3AE5 025-3...	1600	310	150	■	3	31.5	50	35.4	80/82	20	60	20	2.5	90	255	98	122	59.5/95.5	A7E44202012	4a

▲ On request

■ Standard information on rating plate

1) The mass of the fixed-mounted circuit breaker, fitted on the withdrawable part, increases by the values specified in the dimension drawing of the withdrawable part (page 83)

Note: Dimension drawings from page 79



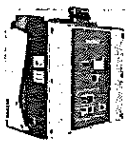
7.2 kV
50/60 Hz

Article No.	I_r Rated normal current	Width across flats	Pole-center distance	Rated switching sequence: O – 0.3 s – CO – 15 s – CO	t_k Rated short-circuit duration	I_{sc} Rated short-circuit breaking current	DC component in % of the rated short-circuit breaking current	Asymmetric breaking current	I_{ma} Rated short-circuit making current (at 50/60 Hz)	I_{bi} Rated back-to-back capacitor-bank inrush making current	U_p Rated lightning impulse voltage	U_d Rated short-duration power-frequency withstand voltage	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC)	Minimum creepage distance Interrupters	Minimum creepage distance Phase-to-earth	Minimum clearance Phase-to-phase	Minimum clearance Phase-to-earth	Mass 1) (fixed-mounted circuit breaker/withdrawable module)	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram no. (see page 58)
	A	mm	mm		s	kA	%	kA	kA	kA, peak	kV	kV	mV	mm	mm	mm	mm	kg		
3AE5 032-1...	800	205	160	■	3	16	50	17.9	40/42	▲	60	20	3	93	245	93	129	49/–	A7E44202016	1
3AE5 032-2...	1250	205	160	■	3	16	50	17.9	40/42	▲	60	20	3	93	245	93	129	49/–	A7E44202016	1
3AE5 033-1...	800	205	160	■	3	20	50	22.4	50/52	▲	60	20	3	93	245	93	129	49/–	A7E44202016	2
3AE5 033-2...	1250	205	160	■	3	20	50	22.4	50/52	▲	60	20	3	93	245	93	129	49/–	A7E44202016	2
3AE5 034-1...	800	205	160	■	3	25	50	28	63/65	▲	60	20	3	93	245	93	129	49/–	A7E44202016	3a
3AE5 034-2...	1250	205	160	■	3	25	50	28	63/65	▲	60	20	3	93	245	93	129	49/–	A7E44202016	3a
3AE5 035-1...	800	205	160	■	3	31.5	50	35.4	80/82	20	60	20	2.5	90	255	98	122	53.5/-	A7E44202016	4a
3AE5 035-2...	1250	205	160	■	3	31.5	50	35.4	80/82	20	60	20	2.5	90	255	98	122	53.5/-	A7E44202016	4a
3AE5 042-1...	800	275	160	■	3	16	50	17.9	40/42	▲	60	20	3	93	245	93	129	49/–	A7E44202017	1
3AE5 042-2...	1250	275	160	■	3	16	50	17.9	40/42	▲	60	20	3	93	245	93	129	49/–	A7E44202017	1
3AE5 043-1...	800	275	160	■	3	20	50	22.4	50/52	▲	60	20	3	93	245	93	129	49/–	A7E44202017	2
3AE5 043-2...	1250	275	160	■	3	20	50	22.4	50/52	▲	60	20	3	93	245	93	129	49/–	A7E44202017	2
3AE5 044-1...	800	275	160	■	3	25	50	28	63/65	▲	60	20	3	93	245	93	129	49/–	A7E44202017	3a
3AE5 044-2...	1250	275	160	■	3	25	50	28	63/65	▲	60	20	3	93	245	93	129	49/–	A7E44202017	3a
3AE5 045-1...	800	275	160	■	3	31.5	50	35.4	80/82	20	60	20	2.5	90	255	98	122	53.5/-	A7E44202017	4a
3AE5 045-2...	1250	275	160	■	3	31.5	50	35.4	80/82	20	60	20	2.5	90	255	98	122	53.5/-	A7E44202017	4a
3AE5 052-1...	800	310	160	■	3	16	50	17.9	40/42	▲	60	20	3	93	245	93	129	49/–	A7E44202018	1
3AE5 052-2...	1250	310	160	■	3	16	50	17.9	40/42	▲	60	20	3	93	245	93	129	49/–	A7E44202018	1
3AE5 052-3...	1600	310	160	■	3	16	50	17.9	40/42	20	60	20	2.5	90	255	98	122	59.5/-	A7E44202018	1a
3AE5 053-1...	800	310	160	■	3	20	50	22.4	50/52	▲	60	20	3	93	245	93	129	49/–	A7E44202018	2
3AE5 053-2...	1250	310	160	■	3	20	50	22.4	50/52	▲	60	20	3	93	245	93	129	49/–	A7E44202018	2
3AE5 053-3...	1600	310	160	■	3	20	50	22.4	50/52	20	60	20	2.5	90	255	98	122	59.5/-	A7E44202018	2a
3AE5 054-1...	800	310	160	■	3	25	50	28	63/65	▲	60	20	3	93	245	93	129	49/–	A7E44202018	3a
3AE5 054-2...	1250	310	160	■	3	25	50	28	63/65	▲	60	20	3	93	245	93	129	49/–	A7E44202018	3a
3AE5 054-3...	1600	310	160	■	3	25	50	28	63/65	20	60	20	2.5	90	255	98	122	59.5/-	A7E44202018	3b
3AE5 055-1...	800	310	160	■	3	31.5	50	35.4	80/82	20	60	20	2.5	90	255	98	122	53.5/-	A7E44202018	4a
3AE5 055-2...	1250	310	160	■	3	31.5	50	35.4	80/82	20	60	20	2.5	90	255	98	122	53.5/-	A7E44202018	4a
3AE5 055-3...	1600	310	160	■	3	31.5	50	35.4	80/82	20	60	20	2.5	90	255	98	122	59.5/-	A7E44202018	4a

▲ On request

■ Standard information on rating plate

1) The mass of the fixed-mounted circuit breaker, fitted on the withdrawable part, increases by the values specified in the dimension drawing of the withdrawable part (page 83)



7.2 kV
50/60 Hz

Article No.	Rated normal current I_r	Width across flats	Pole-center distance	Rated switching sequence: O – 0.3 s – CO – 15 s – CO	Rated short-circuit duration t_k	Rated short-circuit breaking current I_{sc}	DC component in % of the rated short-circuit breaking current	Asymmetric breaking current	Rated short-circuit making current (at 50/60 Hz) I_{ma}	Rated back-to-back capacitor-bank inrush making current I_{bi}	Rated lightning impulse voltage U_p	Rated short-duration power-frequency withstand voltage U_d	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC)	Minimum creepage distance interrupters	Minimum creepage distance phase-to-earth	Minimum clearance Phase-to-phase	Minimum clearance Phase-to-earth	Mass 1) (fixed-mounted circuit-breaker/withdrawable module)	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram no. (see page 58)
	A	mm	mm		s	kA	%	kA	kA	kA, peak	kV	kV	mV	mm	mm	mm	mm	kg		
3AE5 062-1...	800	205	210	■	3	16	50	17.9	40/42	▲	60	20	3	93	245	93	129	51.5/91.5	A7E44202022	1
3AE5 062-2...	1250	205	210	■	3	16	50	17.9	40/42	▲	60	20	3	93	245	93	129	51.5/91.5	A7E44202022	1
3AE5 063-1...	800	205	210	■	3	20	50	22.4	50/52	▲	60	20	3	93	245	93	129	51.5/–	A7E44202022	2
3AE5 063-2...	1250	205	210	■	3	20	50	22.4	50/52	▲	60	20	3	93	245	93	129	51.5/–	A7E44202022	2
3AE5 064-1...	800	205	210	■	3	25	50	28	63/65	▲	60	20	3	93	245	93	129	51.5/–	A7E44202022	3a
3AE5 064-2...	1250	205	210	■	3	25	50	28	63/65	▲	60	20	3	93	245	93	129	51.5/–	A7E44202022	3a
3AE5 065-1...	800	205	210	■	3	31.5	50	35.4	80/82	20	60	20	2.5	90	255	98	122	56.5/–	A7E44202022	4a
3AE5 065-2...	1250	205	210	■	3	31.5	50	35.4	80/82	20	60	20	2.5	90	255	98	122	56.5/–	A7E44202022	4a
3AE5 072-1...	800	275	210	■	3	16	50	17.9	40/42	▲	60	20	3	93	245	93	129	51.5/91.5	A7E44202023	1
3AE5 072-2...	1250	275	210	■	3	16	50	17.9	40/42	▲	60	20	3	93	245	93	129	51.5/91.5	A7E44202023	1
3AE5 073-1...	800	275	210	■	3	20	50	22.4	50/52	▲	60	20	3	93	245	93	129	51.5/91.5	A7E44202023	2
3AE5 073-2...	1250	275	210	■	3	20	50	22.4	50/52	▲	60	20	3	93	245	93	129	51.5/91.5	A7E44202023	2
3AE5 074-1...	800	275	210	■	3	25	50	28	63/65	▲	60	20	3	93	245	93	129	51.5/91.5	A7E44202023	3a
3AE5 074-2...	1250	275	210	■	3	25	50	28	63/65	▲	60	20	3	93	245	93	129	51.5/91.5	A7E44202023	3a
3AE5 075-1...	800	275	210	■	3	31.5	50	35.4	80/82	20	60	20	2.5	90	255	98	122	56.5/96.5	A7E44202023	4a
3AE5 075-2...	1250	275	210	■	3	31.5	50	35.4	80/82	20	60	20	2.5	90	255	98	122	56.5/96.5	A7E44202023	4a
3AE5 082-1...	800	310	210	■	3	16	50	17.9	40/42	▲	60	20	3	93	245	93	129	51.5/91.5	A7E44202024	1
3AE5 082-2...	1250	310	210	■	3	16	50	17.9	40/42	▲	60	20	3	93	245	93	129	51.5/91.5	A7E44202024	1
3AE5 082-3...	1600	310	210	■	3	16	50	17.9	40/42	20	60	20	2.5	90	255	98	122	62.5/102.5	A7E44202024	1a
3AE5 083-1...	800	310	210	■	3	20	50	22.4	50/52	▲	60	20	3	93	245	93	129	51.5/91.5	A7E44202024	2
3AE5 083-2...	1250	310	210	■	3	20	50	22.4	50/52	▲	60	20	3	93	245	93	129	51.5/91.5	A7E44202024	2
3AE5 083-3...	1600	310	210	■	3	20	50	22.4	50/52	20	60	20	2.5	90	255	98	122	62.5/102.5	A7E44202024	2a
3AE5 084-1...	800	310	210	■	3	25	50	28	63/65	▲	60	20	3	93	245	93	129	51.5/91.5	A7E44202024	3a
3AE5 084-2...	1250	310	210	■	3	25	50	28	63/65	▲	60	20	3	93	245	93	129	51.5/91.5	A7E44202024	3a
3AE5 084-3...	1600	310	210	■	3	25	50	28	63/65	20	60	20	2.5	90	255	98	122	62.5/102.5	A7E44202024	3b
3AE5 084-4...	2000	310	210	■	3	25	50	30.6	63/65	20	60	20	1.8	130	240	125	138	100	A7E10907000	3c
3AE5 084-6...	2500	310	210	■	3	25	50	30.6	63/65	20	60	20	1.8	130	240	125	138	100	A7E10907000	3c
3AE5 085-1...	800	310	210	■	3	31.5	50	35.4	80/82	20	60	20	2.5	90	255	98	122	56.5/96.5	A7E44202024	4a

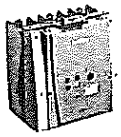
▲ On request

■ Standard information on rating plate

1) The mass of the fixed-mounted circuit breaker, fitted on the withdrawable part, increases by the values specified in the dimension drawing of the withdrawable part (page 83)

Technical data

Electrical data, dimensions and masses for 3AE1



7.2 kV
50/60 Hz

Article No.	I_r Rated normal current	Width across flats	Pole-center distance	Rated switching sequence: O – 0.3 s – CO – 15 s – CO	t_k Rated short-circuit duration	I_{sc} Rated short-circuit breaking current	DC component in % of the rated short-circuit breaking current	Asymmetric breaking current	I_{ma} Rated short-circuit making current (at 50/60 Hz)	I_{bi} Rated back-to-back capacitor-bank inrush making current	U_p Rated lightning impulse voltage	U_d Rated short-duration power-frequency withstand voltage	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC)	Minimum creepage distance interrupters	Minimum creepage distance Phase-to-earth	Minimum clearance Phase-to-phase	Minimum clearance Phase-to-earth	Mass[1] (fixed-mounted circuit breaker/withdrawable module)	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram no. (see page 58)
	A	mm	mm		s	kA	%	kA	kA	kA, peak	kV	kV	mV	mm	mm	mm	mm	kg		
3AE5 085-2...	1250	310	210	■	3	31.5	50	35.4	80/82	20	60	20	2.5	90	255	98	122	56.5/96.5	A7E44202024	4a
3AE5 085-3...	1600	310	210	■	3	31.5	50	35.4	80/82	20	60	20	2.5	90	255	98	122	62.5/102.5	A7E44202024	4a
3AE5 085-4...	2000	310	210	■	3	31.5	50	38.5	80/82	20	60	20	1.8	130	240	125	138	100	A7E10907000	4b
3AE5 085-6...	2500	310	210	■	3	31.5	50	38.5	80/82	20	60	20	1.8	130	240	125	138	100	A7E10907000	4b
3AE1 086-2...	1250	310	210	■	3	40	36	44.9	100/104	10	60	20	1.7	145	155	169	140	120/160	A7E44202070	5
3AE1 086-4...	2000	310	210	■	3	40	36	44.9	100/104	10	60	20	1.0	145	249	149	140	160/210	A7E44202071	5
3AE1 086-6...	2500	310	210	■	3	40	36	44.9	100/104	10	60	20	1.0	145	249	149	140	160/210	A7E44202071	5
3AE1 086-7...	3150	310	210	■	3	40	36	44.9	100/104	10	60	20	1.0	145	249	149	140	160/210	A7E44202071	5

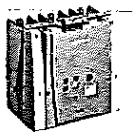
▲ On request

■ Standard information on rating plate

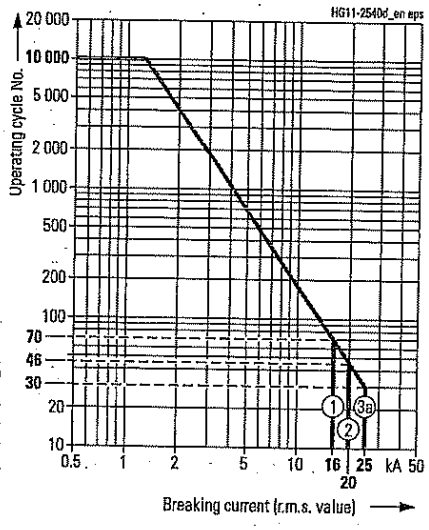
1) The mass of the fixed-mounted circuit breaker, fitted on the withdrawable part, increases by the values specified in the dimension drawing of the withdrawable part (page 83)

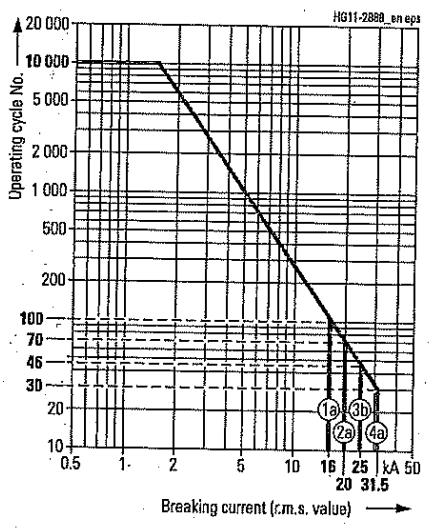
Note: Dimension drawings from page 79

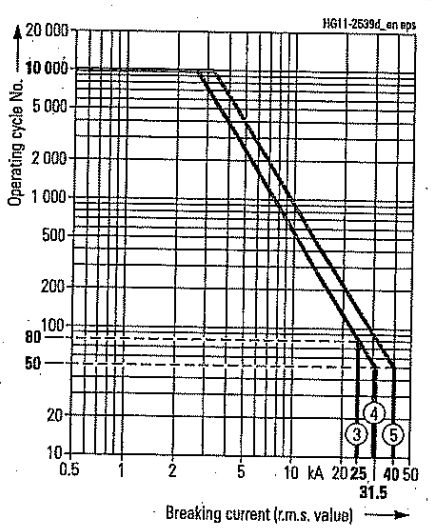
3

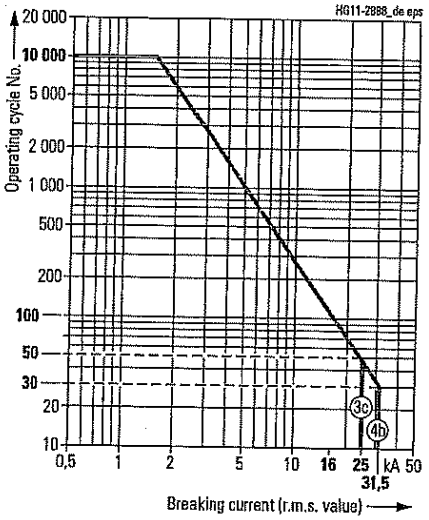


Operating cycle diagrams for 7.2 kV









The permissible number of electrical operating cycles is shown as a function of the breaking current (r.m.s. value). All SION vacuum circuit breakers fulfill the endurance classes E2, M2 and C2 according to IEC 62271-100.
The curve shape beyond the parameters defined in IEC 62271-100 is based on average usage data. The number of operating cycles that can actually be reached can be different depending on the respective application.

12 kV
50/60 Hz

Article No.	Rated normal current I_r	Width across flats	Pole-center distance	Rated switching sequence: O – 0.3 s – CO – 15 s – CO	Rated short-circuit duration t_k	Rated short-circuit breaking current I_{sc}	DC component in % of the rated short-circuit breaking current	Asymmetric breaking current	Rated short-circuit making current (at 50/60 Hz) I_{ma}	Rated back-to-back capacitor-bank inrush making current I_{ei}	Rated lightning impulse voltage U_p	Rated short-duration power-frequency withstand voltage U_d	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC)	Minimum creepage distance interrupters	Minimum creepage distance Phase-to-earth	Minimum clearance Phase-to-phase	Minimum clearance Phase-to-earth	Mass 1) (fixed-mounted circuit breaker/withdrawable module)	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram no. (see page 67)
	A	mm	mm		s	kA	%	kA	kA	kA, peak	kV	kV	mV	mm	mm	mm	mm	kg		
3AE5 102-1...	800	205	150	■	3	16	50	17.9	40/42	▲	75	28	3	93	245	93	129	49/–	A7E44202010	6
3AE5 102-2...	1250	205	150	■	3	16	50	17.9	40/42	▲	75	28	3	93	245	93	129	49/–	A7E44202010	6
3AE5 103-1...	800	205	150	■	3	20	50	22.4	50/52	▲	75	28	3	93	245	93	129	49/–	A7E44202010	7
3AE5 103-2...	1250	205	150	■	3	20	50	22.4	50/52	▲	75	28	3	93	245	93	129	49/–	A7E44202010	7
3AE5 104-1...	800	205	150	■	3	25	50	28	63/65	▲	75	28	3	93	245	93	129	49/–	A7E44202010	8a
3AE5 104-2...	1250	205	150	■	3	25	50	28	63/65	▲	75	28	3	93	245	93	129	49/–	A7E44202010	8a
3AE5 105-1...	800	205	150	■	3	31.5	50	35.4	80/82	20	75	28	2.5	90	255	98	122	53.5/-	A7E44202010	9a
3AE5 105-2...	1250	205	150	■	3	31.5	50	35.4	80/82	20	75	28	2.5	90	255	98	122	53.5/-	A7E44202010	9a
3AE5 112-1...	800	275	150	■	3	16	50	17.9	40/42	▲	75	28	3	93	245	93	129	49/85	A7E44202011	6
3AE5 112-2...	1250	275	150	■	3	16	50	17.9	40/42	▲	75	28	3	93	245	93	129	49/85	A7E44202011	6
3AE5 113-1...	800	275	150	■	3	20	50	22.4	50/52	▲	75	28	3	93	245	93	129	49/85	A7E44202011	7
3AE5 113-2...	1250	275	150	■	3	20	50	22.4	50/52	▲	75	28	3	93	245	93	129	49/85	A7E44202011	7
3AE5 114-1...	800	275	150	■	3	25	50	28	63/65	▲	75	28	3	93	245	93	129	49/85	A7E44202011	8a
3AE5 114-2...	1250	275	150	■	3	25	50	28	63/65	▲	75	28	3	93	245	93	129	49/85	A7E44202011	8a
3AE5 115-1...	800	275	150	■	3	31.5	50	35.4	80/82	20	75	28	2.5	90	255	98	122	53.5/89.5	A7E44202011	9a
3AE5 115-2...	1250	275	150	■	3	31.5	50	35.4	80/82	20	75	28	2.5	90	255	98	122	53.5/89.5	A7E44202011	9a
3AE5 122-1...	800	310	150	■	3	16	50	17.9	40/42	▲	75	28	3	93	245	93	129	49/85	A7E44202012	6
3AE5 122-2...	1250	310	150	■	3	16	50	17.9	40/42	▲	75	28	3	93	245	93	129	49/85	A7E44202012	6
3AE5 122-3...	1600	310	150	■	3	16	50	17.9	40/42	20	75	28	2.5	90	255	98	122	59.5/95.5	A7E44202012	6a
3AE5 123-1...	800	310	150	■	3	20	50	22.4	50/52	▲	75	28	3	93	245	93	129	49/85	A7E44202012	7
3AE5 123-2...	1250	310	150	■	3	20	50	22.4	50/52	▲	75	28	3	93	245	93	129	49/85	A7E44202012	7
3AE5 123-3...	1600	310	150	■	3	20	50	22.4	50/52	20	75	28	2.5	90	255	98	122	59.5/95.5	A7E44202012	7a
3AE5 124-1...	800	310	150	■	3	25	50	28	63/65	▲	75	28	3	93	245	93	129	49/85	A7E44202012	8a
3AE5 124-2...	1250	310	150	■	3	25	50	28	63/65	▲	75	28	3	93	245	93	129	49/85	A7E44202012	8a
3AE5 124-3...	1600	310	150	■	3	25	50	28	63/65	20	75	28	2.5	90	255	98	122	59.5/95.5	A7E44202012	8b

▲ On request

■ Standard information on rating plate

1) The mass of the fixed-mounted circuit breaker, fitted on the withdrawable part, increases by the values specified in the dimension drawing of the withdrawable part (page 83)

3

12 kV 50/60 Hz																						
Article No.	Rated normal current I_r	Width across flats	Pole-center distance	Rated switching sequence: O – 0.3 s – CO – 15 s – CO	Rated short-circuit duration t_k	Rated short-circuit breaking current I_{sc}	DC component in % of the rated short-circuit breaking current	Asymmetric breaking current	Rated short-circuit making current (at 50/60 Hz) I_{sa}	Rated back-to-back capacitor-bank inrush making current I_{ss}	Rated lightning impulse voltage U_p	Rated short-duration power-frequency withstand voltage U_d	Voltage drop ΔU between connections (acc. to IEC 62271-1, at 100 A DC)	Minimum creepage distance interrupters	Minimum creepage distance Phase-to-earth	Minimum clearance Phase-to-phase	Minimum clearance Phase-to-earth	Mass [1] (fixed-mounted circuit-breaker/withdrawable module)	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram no. (see page 67)	
	A	mm	mm		s	kA	%	kA	kA	kA, peak	kV	kV	mV	mm	mm	mm	mm	kg			
3AE5 125-1...	800	310	150	■	3	31.5	50	35.4	80/82	20	75	28	2.5	90	255	98	122	53.5/89.5	A7E44202012	9a	
3AE5 125-2...	1250	310	150	■	3	31.5	50	35.4	80/82	20	75	28	2.5	90	255	98	122	53.5/89.5	A7E44202012	9a	
3AE5 125-3...	1600	310	150	■	3	31.5	50	35.4	80/82	20	75	28	2.5	90	255	98	122	59.5/95.5	A7E44202012	9a	
3AE5 132-1...	800	205	160	■	3	16	50	17.9	40/42	▲	75	28	3	93	245	93	129	49/–	A7E44202016	6	
3AE5 132-2...	1250	205	160	■	3	16	50	17.9	40/42	▲	75	28	3	93	245	93	129	49/–	A7E44202016	6	
3AE5 133-1...	800	205	160	■	3	20	50	22.4	50/52	▲	75	28	3	93	245	93	129	49/–	A7E44202016	7	
3AE5 133-2...	1250	205	160	■	3	20	50	22.4	50/52	▲	75	28	3	93	245	93	129	49/–	A7E44202016	7	
3AE5 134-1...	800	205	160	■	3	25	50	28	63/65	▲	75	28	3	93	245	93	129	49/–	A7E44202016	8a	
3AE5 134-2...	1250	205	160	■	3	25	50	28	63/65	▲	75	28	3	93	245	93	129	49/–	A7E44202016	8a	
3AE5 135-1...	800	205	160	■	3	31.5	50	35.4	80/82	20	75	28	2.5	90	255	98	122	53.5/–	A7E44202016	9a	
3AE5 135-2...	1250	205	160	■	3	31.5	50	35.4	80/82	20	75	28	2.5	90	255	98	122	53.5/–	A7E44202016	9a	
3AE5 142-1...	800	275	160	■	3	16	50	17.9	40/42	▲	75	28	3	93	245	93	129	49/–	A7E44202017	6	
3AE5 142-2...	1250	275	160	■	3	16	50	17.9	40/42	▲	75	28	3	93	245	93	129	49/–	A7E44202017	6	
3AE5 143-1...	800	275	160	■	3	20	50	22.4	50/52	▲	75	28	3	93	245	93	129	49/–	A7E44202017	7	
3AE5 143-2...	1250	275	160	■	3	20	50	22.4	50/52	▲	75	28	3	93	245	93	129	49/–	A7E44202017	7	
3AE5 144-1...	800	275	160	■	3	25	50	28	63/65	▲	75	28	3	93	245	93	129	49/–	A7E44202017	8a	
3AE5 144-2...	1250	275	160	■	3	25	50	28	63/65	▲	75	28	3	93	245	93	129	49/–	A7E44202017	8a	
3AE5 145-1...	800	275	160	■	3	31.5	50	35.4	80/82	20	75	28	2.5	90	255	98	122	53.5/–	A7E44202017	9a	
3AE5 145-2...	1250	275	160	■	3	31.5	50	35.4	80/82	20	75	28	2.5	90	255	98	122	53.5/–	A7E44202017	9a	
3AE5 152-1...	800	310	160	■	3	16	50	17.9	40/42	▲	75	28	3	93	245	93	129	49/–	A7E44202018	6	
3AE5 152-2...	1250	310	160	■	3	16	50	17.9	40/42	▲	75	28	3	93	245	93	129	49/–	A7E44202018	6	
3AE5 152-3...	1600	310	160	■	3	16	50	17.9	40/42	20	75	28	2.5	90	255	98	122	59.5/–	A7E44202018	6a	
3AE5 153-1...	800	310	160	■	3	20	50	22.4	50/52	▲	75	28	3	93	245	93	129	49/–	A7E44202018	7	
3AE5 153-2...	1250	310	160	■	3	20	50	22.4	50/52	▲	75	28	3	93	245	93	129	49/–	A7E44202018	7	
3AE5 153-3...	1600	310	160	■	3	20	50	22.4	50/52	20	75	28	2.5	90	255	98	122	59.5/–	A7E44202018	7a	

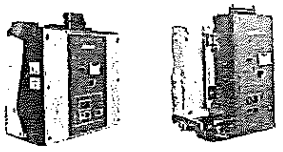
▲ On request

■ Standard information on rating plate

1) The mass of the fixed-mounted circuit breaker, fitted on the withdrawable part, increases by the values specified in the dimension drawing of the withdrawable part (page 83)

Technical data

Electrical data, dimensions and masses for 3AE5



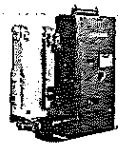
12 kV
50/60 Hz

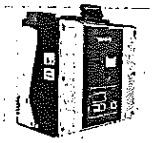
Article No.	I_r Rated normal current	Width across flats	Pole-center distance	Rated switching sequence: O – 0.3 s – CO – 15 s – CO	t_k Rated short-circuit duration	I_n Rated short-circuit breaking current	DC component in % of the rated short-circuit breaking current	Asymmetric breaking current	I_{ma} Rated short-circuit making current (at 50/60 Hz)	I_{bb} Rated back-to-back capacitor-bank inrush making current	U_p Rated lightning impulse voltage	U_d Rated short-duration power-frequency withstand voltage	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC)	Minimum creepage distance Interrupters	Minimum creepage distance Phase-to-earth	Minimum clearance Phase-to-phase	Minimum clearance Phase-to-earth	Mass 1) (fixed-mounted circuit breaker/withdrawable module)	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram no. (see page 67)
	A	mm	mm		s	kA	%	kA	kA	kA peak	kV	kV	mV	mm	mm	mm	mm	kg		
3AE5 154-1...	800	310	160	■	3	25	50	28	63/65	▲	75	28	3	93	245	93	129	49/–	A7E44202018	8a
3AE5 154-2...	1250	310	160	■	3	25	50	28	63/65	▲	75	28	3	93	245	93	129	49/–	A7E44202018	8a
3AE5 154-3...	1600	310	160	■	3	25	50	28	63/65	20	75	28	2.5	90	255	98	122	59.5/–	A7E44202018	8b
3AE5 155-1...	800	310	160	■	3	31.5	50	35.4	80/82	20	75	28	2.5	90	255	98	122	53.5/–	A7E44202018	9a
3AE5 155-2...	1250	310	160	■	3	31.5	50	35.4	80/82	20	75	28	2.5	90	255	98	122	53.5/–	A7E44202018	9a
3AE5 155-3...	1600	310	160	■	3	31.5	50	35.4	80/82	20	75	28	2.5	90	255	98	122	59.5/–	A7E44202018	9a
3AE5 162-1...	800	205	210	■	3	16	50	17.9	40/42	▲	75	28	3	93	245	93	129	51.5/–	A7E44202022	6
3AE5 162-2...	1250	205	210	■	3	16	50	17.9	40/42	▲	75	28	3	93	245	93	129	51.5/–	A7E44202022	6
3AE5 163-1...	800	205	210	■	3	20	50	22.4	50/52	▲	75	28	3	93	245	93	129	51.5/–	A7E44202022	7
3AE5 163-2...	1250	205	210	■	3	20	50	22.4	50/52	▲	75	28	3	93	245	93	129	51.5/–	A7E44202022	7
3AE5 164-1...	800	205	210	■	3	25	50	28	63/65	▲	75	28	3	93	245	93	129	49/–	A7E44202022	8a
3AE5 164-2...	1250	205	210	■	3	25	50	28	63/65	▲	75	28	3	93	245	93	129	49/–	A7E44202022	8a
3AE5 165-1...	800	205	210	■	3	31.5	50	35.4	80/82	20	75	28	2.5	90	255	98	122	56.5/–	A7E44202022	9a
3AE5 165-2...	1250	205	210	■	3	31.5	50	35.4	80/82	20	75	28	2.5	90	255	98	122	56.5/–	A7E44202022	9a
3AE5 172-1...	800	275	210	■	3	16	50	17.9	40/42	▲	75	28	3	93	245	93	129	51.5/91.5	A7E44202023	6
3AE5 172-2...	1250	275	210	■	3	16	50	17.9	40/42	▲	75	28	3	93	245	93	129	51.5/91.5	A7E44202023	6
3AE5 173-1...	800	275	210	■	3	20	50	22.4	50/52	▲	75	28	3	93	245	93	129	51.5/91.5	A7E44202023	7
3AE5 173-2...	1250	275	210	■	3	20	50	22.4	50/52	▲	75	28	3	93	245	93	129	51.5/91.5	A7E44202023	7
3AE5 174-1...	800	275	210	■	3	25	50	28	63/65	▲	75	28	3	93	245	93	129	51.5/91.5	A7E44202023	8a
3AE5 174-2...	1250	275	210	■	3	25	50	28	63/65	▲	75	28	3	93	245	93	129	51.5/91.5	A7E44202023	8a
3AE5 175-1...	800	275	210	■	3	31.5	50	35.4	80/82	20	75	28	2.5	90	255	98	122	56.5/96.5	A7E44202023	9a
3AE5 175-2...	1250	275	210	■	3	31.5	50	35.4	80/82	20	75	28	2.5	90	255	98	122	56.5/96.5	A7E44202023	9a
3AE5 182-1...	800	310	210	■	3	16	50	17.9	40/42	▲	75	28	3	93	245	93	129	51.5/91.5	A7E44202024	6
3AE5 182-2...	1250	310	210	■	3	16	50	17.9	40/42	▲	75	28	3	93	245	93	129	51.5/91.5	A7E44202024	6
3AE5 182-3...	1600	310	210	■	3	16	50	17.9	40/42	20	75	28	2.5	90	255	98	122	62.5/102.5	A7E44202024	6a

▲ On request

■ Standard information on rating plate

1) The mass of the fixed-mounted circuit breaker, fitted on the withdrawable part, increases by the values specified in the dimension drawing of the withdrawable part (page 83)



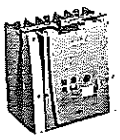


12 kV 50/60 Hz Article No.	Rated normal current I_r A	Width across flats mm	Pole-center distance mm	Rated switching sequence: O – 0.3 s – CO – 15 s – CO	Rated short-circuit duration s	Rated short-circuit breaking current I_{sc} kA	DC component in % of the rated short-circuit breaking current	Asymmetric breaking current kA	Rated short-circuit making current (I_{ma} at 50/60 Hz) kA	Rated back-to-back capacitor bank inrush making current I_{sc} kA peak	Rated lightning impulse voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC) mV	Minimum creepage distance interrupters mm	Minimum creepage distance Phase-to-earth mm	Minimum clearance Phase-to-phase mm	Minimum clearance Phase-to-earth mm	Mass [1] (fixed-mounted circuit breaker/withdrawable module) kg	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram no. (see page 67)
3AE5 183-1...	800	310	210	■	3	20	50	22.4	50/52	▲	75	28	3	93	245	93	129	51.5/91.5	A7E44202024	7
3AE5 183-2...	1250	310	210	■	3	20	50	22.4	50/52	▲	75	28	3	93	245	93	129	51.5/91.5	A7E44202024	7
3AE5 183-3...	1600	310	210	■	3	20	50	22.4	50/52	20	75	28	2.5	90	255	98	122	62.5/102.5	A7E44202024	7a
3AE5 183-4...	2000	310	210	■	3	20	50	24.5	50/52	20	75	28	1.8	130	240	125	138	100	A7E10907000	7b
3AE5 183-6...	2500	310	210	■	3	20	50	24.5	50/52	20	75	28	1.8	130	240	125	138	100	A7E10907000	7b
3AE5 184-1...	800	310	210	■	3	25	50	28	63/65	▲	75	28	3	93	245	93	129	51.5/91.5	A7E44202024	8a
3AE5 184-2...	1250	310	210	■	3	25	50	28	63/65	▲	75	28	3	93	245	93	129	51.5/91.5	A7E44202024	8a
3AE5 184-3...	1600	310	210	■	3	25	50	28	63/65	20	75	28	2.5	90	255	98	122	62.5/102.5	A7E44202024	8b
3AE5 184-4...	2000	310	210	■	3	25	50	30.6	63/65	20	75	28	1.8	130	240	125	138	100	A7E10907000	8c
3AE5 184-6...	2500	310	210	■	3	25	50	30.6	63/65	20	75	28	1.8	130	240	125	138	100	A7E10907000	8c
3AE5 185-1...	800	310	210	■	3	31.5	50	35.4	80/82	20	75	28	2.5	90	255	98	122	56.5/96.5	A7E44202024	9a
3AE5 185-2...	1250	310	210	■	3	31.5	50	35.4	80/82	20	75	28	2.5	90	255	98	122	56.5/96.5	A7E44202024	9a
3AE5 185-3...	1600	310	210	■	3	31.5	50	35.4	80/82	20	75	28	2.5	90	255	98	122	62.5/102.5	A7E44202024	9a
3AE5 185-4...	2000	310	210	■	3	31.5	50	38.6	80/82	20	75	28	1.8	130	240	125	138	100	A7E10907000	9b
3AE5 185-6...	2500	310	210	■	3	31.5	50	38.6	80/82	20	75	28	1.8	130	240	125	138	100	A7E10907000	9b
3AE5 554-1...	800	275	160	■	3	25	50	44.9	63/65	▲	75	28	3	93	245	93	129	49/–	A7E44202024	8a
3AE5 554-2...	1250	275	160	■	3	25	50	44.9	63/65	▲	75	28	3	93	245	93	129	49/–	A7E44202024	8a
3AE5 555-1...	800	275	160	■	3	31.5	50	35.4	80/82	20	75	28	2.5	90	255	130	135	66.5/–	A7E44202038	9a
3AE5 555-2...	1250	275	160	■	3	31.5	50	35.4	80/82	20	75	28	2.5	90	255	130	135	66.5/–	A7E44202038	9a
3AE5 564-3...	1600	275	210	■	3	25	50	28.0	63/65	20	75	28	2.5	90	255	98	122	74.5/-	A7E44202040	8b
3AE5 565-2...	1250	275	210	■	3	31.5	50	35.4	80/82	20	75	28	2.5	90	255	130	135	69.5/–	A7E44202040	9a
3AE5 565-3...	1600	275	210	■	3	31.5	50	35.4	80/82	20	75	28	2.5	90	255	130	135	74.5/–	A7E44202040	9a
3AE5 565-6...	2500	275	210	■	3	31.5	50	38.5	80/82	20	75	28	1.8	130	240	125	138	110	A7E10907005	9b
3AE5 583-4...	2000	310	275	■	3	20	50	24.5	50/52	20	75	28	1.8	130	240	190	138	105	A7E10907000	7b
3AE5 583-6...	2500	310	275	■	3	20	50	24.5	50/52	20	75	28	1.8	130	240	190	138	105	A7E10907000	7b
3AE5 584-4...	2000	310	275	■	3	25	50	30.6	63/65	20	75	28	1.8	130	240	190	138	105	A7E10907000	8c
3AE5 584-6...	2500	310	275	■	3	25	50	30.6	63/65	20	75	28	1.8	130	240	190	138	105	A7E10907000	8c
3AE5 585-2...	1250	310	275	■	3	31.5	50	38.6	80/82	20	75	28	2.0	130	240	225	143	105	A7E10907000	9b
3AE5 585-4...	2000	310	275	■	3	31.5	50	38.6	80/82	20	75	28	1.8	130	240	225	138	105	A7E10907000	9b
3AE5 585-6...	2500	310	275	■	3	31.5	50	38.6	80/82	20	75	28	1.8	130	240	225	138	105	A7E10907000	9b

▲ On request

■ Standard information on rating plate

1) The mass of the fixed-mounted circuit breaker, fitted on the withdrawable part, increases by the values specified in the dimension drawing of the withdrawable part (page 83)



12 kV
50/60 Hz

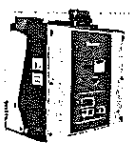
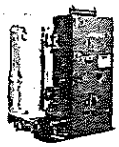
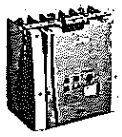
Article No.	Rated normal current I_r	Width across flats	Pole-center distance	Rated switching sequence: O – 0.3 s – CO – 15 s – CO	Rated short-circuit duration t_k	Rated short-circuit breaking current I_{sc}	DC component in % of the rated short-circuit breaking current	Asymmetric breaking current	Rated short-circuit making current (at 50/60 Hz) I_{ma}	Rated back-to-back capacitor-bank inrush making current I_{ss}	Rated lightning impulse voltage U_p	Rated short-duration power-frequency withstand voltage U_d	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC)	Minimum creepage distance Interrupters	Minimum creepage distance Phase-to-earth	Minimum clearance Phase-to-phase	Minimum clearance Phase-to-earth	Mass [1] (fixed-mounted circuit breaker/withdrawable module)	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram no. (see page 67)
	A	mm	mm		s	kA	%	kA	kA	kA, peak	kV	kV	mV	mm	mm	mm	mm	kg		
3AE1 186-2...	1250	310	210	■	3	40	36	44.9	100/104	10	75	28	1.7	145	155	169	140	120/160	A7E44202070	10
3AE1 186-4...	2000	310	210	■	3	40	36	44.9	100/104	10	75	28	1.0	145	249	149	140	160/210	A7E44202071	10
3AE1 186-6...	2500	310	210	■	3	40	36	44.9	100/104	10	75	28	1.0	145	249	149	140	160/210	A7E44202071	10
3AE1 186-7...	3150	310	210	■	3	40	36	44.9	100/104	10	75	28	1.0	145	249	149	140	160/210	A7E44202071	10
3AE1 566-2...	1250	275	210	■	3	40	36	44.9	100/104	10	75	28	1.7	145	155	169	140	120/–	–	10
3AE1 566-6...	2500	275	210	■	3	40	36	44.9	100/104	10	75	28	1.0	145	249	149	140	160/–	–	10
3AE1 566-7...	3150	275	210	■	3	40	36	44.9	100/104	10	75	28	1.0	145	249	149	140	160/–	–	10
3AE1 586-2...	1250	310	275	■	3	40	36	44.9	100/104	10	75	28	1.7	145	155	234	140	125/165	A7E44202068	10
3AE1 586-4...	2000	310	275	■	3	40	36	44.9	100/104	10	75	28	1.0	145	155	214	140	165/205	A7E44202069	10
3AE1 586-6...	2500	310	275	■	3	40	36	44.9	100/104	10	75	28	1.0	145	155	214	140	165/205	A7E44202069	10
3AE1 586-7...	3150	310	275	■	3	40	36	44.9	100/104	10	75	28	1.0	145	155	214	140	165/205	A7E44202069	10

▲ On request

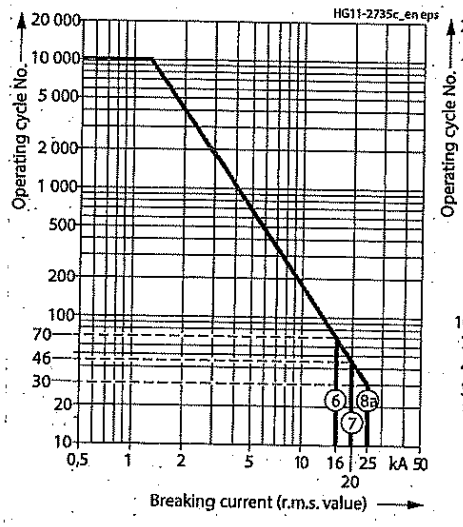
■ Standard information on rating plate

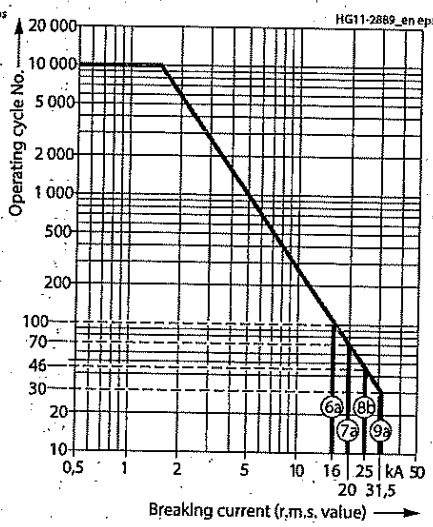
1) The mass of the fixed-mounted circuit breaker, fitted on the withdrawable part, increases by the values specified in the dimension drawing of the withdrawable part (page 83)

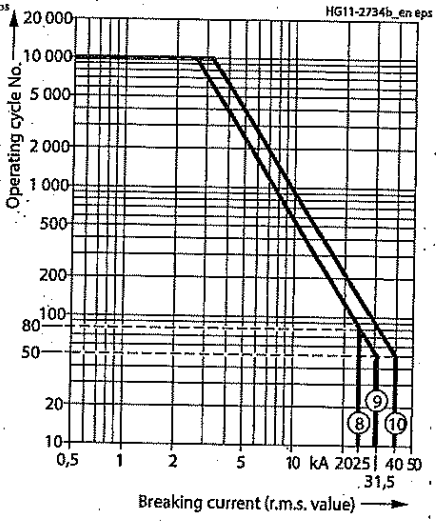
3

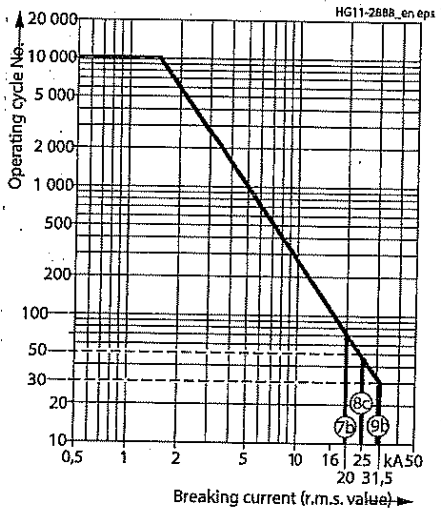




Operating cycle diagrams for 12 kV





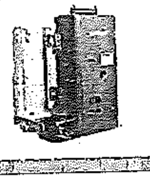
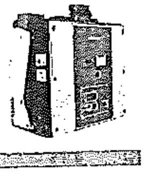




The permissible number of electrical operating cycles is shown as a function of the breaking current (r.m.s. value). All SION vacuum circuit breakers fulfill the endurance classes E2, M2 and C2 according to IEC 62271-100.
The curve shape beyond the parameters defined in IEC 62271-100 is based on average usage data. The number of operating cycles that can actually be reached can be different depending on the respective application.

Technical data

Electrical data, dimensions and masses for 3AE5

17.5 kV 50/60 Hz Article No.	Rated normal current I_r	Width across flats	Pole-center distance	Rated switching sequence: O – 0.3 s – CO – 15 s – CO	Rated short-circuit duration t_k	Rated short-circuit breaking current I_{sc}	DC component in % of the rated short-circuit breaking current	Asymmetric breaking current	Rated short-circuit making current (at 50/60 Hz) I_{ma}	Rated back-to-back-capacitor-bank inrush making current I_{bi}	Rated lightning impulse voltage U_p	Rated short-duration power-frequency withstand voltage U_d	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC)	Minimum creepage distance Interrupters	Minimum creepage distance Phase-to-earth	Minimum clearance Phase-to-phase	Minimum clearance Phase-to-earth	Mass 1) (fixed-mounted circuit breaker/withdrawable module)	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram no. (see page 75)
	A	mm	mm		s	kA	%	kA	kA	kA, peak	kV	kV	mV	mm	mm	mm	mm	kg		
3AE5 202-1...	800	205	150	■	3	16	50	17.9	40/42	20	95	38	2.5	240	255	130	135	54/–	A7E44202010	12a
3AE5 202-2...	1250	205	150	■	3	16	50	17.9	40/42	20	95	38	2.5	240	255	130	135	54/–	A7E44202010	12a
3AE5 204-1...	800	205	150	■	3	25	50	28	63/65	20	95	38	2.5	240	255	130	135	54/–	A7E44202010	13a
3AE5 204-2...	1250	205	150	■	3	25	50	28	63/65	20	95	38	2.5	240	255	130	135	54/–	A7E44202010	13a
3AE5 205-1...	800	205	150	■	3	31.5	50	38.6	80/82	20	95	38	2.0	130	240	150	143	83	A7E10907000	14b
3AE5 205-2...	1250	205	150	■	3	31.5	50	38.6	80/82	20	95	38	2.0	130	240	150	143	83	A7E10907000	14b
3AE5 212-1...	800	275	150	■	3	16	50	17.9	40/42	20	95	38	2.5	240	255	130	135	54/94	A7E44202011	12a
3AE5 212-2...	1250	275	150	■	3	16	50	17.9	40/42	20	95	38	2.5	240	255	130	135	54/94	A7E44202011	12a
3AE5 214-1...	800	275	150	■	3	25	50	28	63/65	20	95	38	2.5	240	255	130	135	54/94	A7E44202011	13a
3AE5 214-2...	1250	275	150	■	3	25	50	28	63/65	20	95	38	2.5	240	255	130	135	54/94	A7E44202011	13a
3AE5 215-1...	800	275	150	■	3	31.5	50	38.6	80/82	20	95	38	2.0	130	240	150	143	83	A7E10907000	14b
3AE5 215-2...	1250	275	150	■	3	31.5	50	38.6	80/82	20	95	38	2.0	130	240	150	143	83	A7E10907000	14b
3AE5 222-1...	800	310	150	■	3	16	50	17.9	40/42	20	95	38	2.5	240	255	130	135	54/94	A7E44202012	12a
3AE5 222-2...	1250	310	150	■	3	16	50	17.9	40/42	20	95	38	2.5	240	255	130	135	54/94	A7E44202012	12a
3AE5 222-3...	1600	310	150	■	3	16	50	17.9	40/42	20	95	38	2.5	240	255	130	135	60/100	A7E44202012	12a
3AE5 224-1...	800	310	150	■	3	25	50	28	63/65	20	95	38	2.5	240	255	130	135	54/94	A7E44202012	13a
3AE5 224-2...	1250	310	150	■	3	25	50	28	63/65	20	95	38	2.5	240	255	130	135	54/94	A7E44202012	13a
3AE5 224-3...	1600	310	150	■	3	25	50	28	63/65	20	95	38	2.5	240	255	130	135	60/100	A7E44202012	13a
3AE5 225-1...	800	310	150	■	3	31.5	50	38.6	80/82	20	95	38	2.0	130	240	150	143	83	A7E10907000	14b
3AE5 225-2...	1250	310	150	■	3	31.5	50	38.6	80/82	20	95	38	2.0	130	240	150	143	83	A7E10907000	14b
3AE5 225-3...	1600	310	150	■	3	31.5	50	38.6	80/82	20	95	38	2.0	130	240	150	143	83	A7E10907000	14b
3AE5 232-1...	800	205	160	■	3	16	50	17.9	40/42	20	95	38	2.5	240	255	130	135	54/–	A7E44202016	12a
3AE5 232-2...	1250	205	160	■	3	16	50	17.9	40/42	20	95	38	2.5	240	255	130	135	54/–	A7E44202016	12a
3AE5 234-1...	800	205	160	■	3	25	50	28	63/65	20	95	38	2.5	240	255	130	135	54/–	A7E44202016	13a
3AE5 234-2...	1250	205	160	■	3	25	50	28	63/65	20	95	38	2.5	240	255	130	135	54/–	A7E44202016	13a
3AE5 235-1...	800	205	160	■	3	31.5	50	38.6	80/82	20	95	38	2.0	130	240	160	143	83	A7E10907000	14b
3AE5 235-2...	1250	205	160	■	3	31.5	50	38.6	80/82	20	95	38	2.0	130	240	160	143	83	A7E10907000	14b

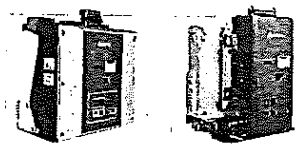
■ Standard information on rating plate

1) The mass of the fixed-mounted circuit breaker, fitted on the withdrawable part, increases by the values specified in the dimension drawing of the withdrawable part (page 83).

3

ВЯРНО С ОРИГИНАЛА

СОФИЯ



17.5 kV 50/60 Hz																					
Article No.	Rated normal current I_r	Width across flats	Pole-center distance	Rated switching sequence: O – 0.3 s – CO – 15 s – CO	Rated short-circuit duration t_k	Rated short-circuit breaking current I_{sc}	DC component in % of the rated short-circuit breaking current	Asymmetric breaking current	Rated short-circuit making current (at 50/60 Hz) I_{ma}	Rated back-to-back capacitor-bank inrush making current I_{bb}	Rated lightning impulse voltage U_p	Rated short-duration power-frequency withstand voltage U_d	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC)	Minimum creepage distance interrupters	Minimum creepage distance Phase-to-earth	Minimum clearance Phase-to-phase	Minimum clearance Phase-to-earth	Mass [1] (fixed-mounted circuit breaker/withdrawable module)	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram no. (see page 75)
	A	mm	mm		s	kA	%	kA	kA	kA peak	kV	kV	mV	mm	mm	mm	mm	kg		
3AE5 242-1...	800	275	160	■	3	16	50	17.9	40/42	20	95	38	2.5	240	255	130	135	54/-	A7E44202017	12a
3AE5 242-2...	1250	275	160	■	3	16	50	17.9	40/42	20	95	38	2.5	240	255	130	135	54/-	A7E44202017	12a
3AE5 244-1...	800	275	160	■	3	25	50	28	63/65	20	95	38	2.5	240	255	130	135	54/-	A7E44202017	13a
3AE5 244-2...	1250	275	160	■	3	25	50	28	63/65	20	95	38	2.5	240	255	130	135	54/-	A7E44202017	13a
3AE5 245-1...	800	275	160	■	3	31.5	50	38.6	80/82	20	95	38	2.0	130	240	160	143	83	A7E10907000	14b
3AE5 245-2...	1250	275	160	■	3	31.5	50	38.6	80/82	20	95	38	2.0	130	240	160	143	83	A7E10907000	14b
3AE5 252-1...	800	310	160	■	3	16	50	17.9	40/42	20	95	38	2.5	240	255	130	135	54/-	A7E44202018	12a
3AE5 252-2...	1250	310	160	■	3	16	50	17.9	40/42	20	95	38	2.5	240	255	130	135	54/-	A7E44202018	12a
3AE5 252-3...	1600	310	160	■	3	16	50	17.9	40/42	20	95	38	2.5	240	255	130	135	60/-	A7E44202018	12a
3AE5 254-1...	800	310	160	■	3	25	50	28	63/65	20	95	38	2.5	240	255	130	135	54/-	A7E44202018	13a
3AE5 254-2...	1250	310	160	■	3	25	50	28	63/65	20	95	38	2.5	240	255	130	135	54/-	A7E44202018	13a
3AE5 254-3...	1600	310	160	■	3	25	50	28	63/65	20	95	38	2.5	240	255	130	135	60/-	A7E44202018	13a
3AE5 255-1...	800	310	160	■	3	31.5	50	38.6	80/82	20	95	38	2.0	130	240	160	143	83	A7E10907000	14b
3AE5 255-2...	1250	310	160	■	3	31.5	50	38.6	80/82	20	95	38	2.0	130	240	160	143	83	A7E10907000	14b
3AE5 255-3...	1600	310	160	■	3	31.5	50	38.5	80/82	20	95	38	2.0	130	240	160	143	83	A7E10907000	14b
3AE5 262-1...	800	205	210	■	3	16	50	17.9	40/42	20	95	38	2.5	240	255	130	135	57/-	A7E44202022	12a
3AE5 262-2...	1250	205	210	■	3	16	50	17.9	40/42	20	95	38	2.5	240	255	130	135	57/-	A7E44202022	12a
3AE5 264-1...	800	205	210	■	3	25	50	28	63/65	20	95	38	2.5	240	255	130	135	57/-	A7E44202022	13a
3AE5 264-2...	1250	205	210	■	3	25	50	28	63/65	20	95	38	2.5	240	255	130	135	57/-	A7E44202022	13a
3AE5 265-1...	800	205	210	■	3	31.5	50	38.6	80/82	20	95	38	2.0	130	240	210	143	88	A7E10907000	14b
3AE5 265-2...	1250	205	210	■	3	31.5	50	38.6	80/82	20	95	38	2.0	130	240	210	143	88	A7E10907000	14b
3AE5 272-1...	800	275	210	■	3	16	50	17.9	40/42	20	95	38	2.5	240	255	130	135	57/97	A7E44202023	12a
3AE5 272-2...	1250	275	210	■	3	16	50	17.9	40/42	20	95	38	2.5	240	255	130	135	57/97	A7E44202023	12a
3AE5 274-1...	800	275	210	■	3	25	50	28	63/65	20	95	38	2.5	240	255	130	135	57/97	A7E44202023	13a
3AE5 274-2...	1250	275	210	■	3	25	50	28	63/65	20	95	38	2.5	240	255	130	135	57/97	A7E44202023	13a
3AE5 275-1...	800	275	210	■	3	31.5	50	38.6	80/82	20	95	38	2.0	130	240	210	143	88	A7E10907000	14b
3AE5 275-2...	1250	275	210	■	3	31.5	50	38.6	80/82	20	95	38	2.0	130	240	210	143	88	A7E10907000	14b

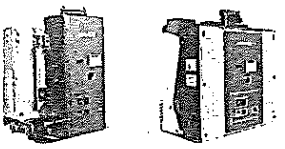
■ Standard information on rating plate

1) The mass of the fixed-mounted circuit breaker, fitted on the withdrawable part, increases by the values specified in the dimension drawing of the withdrawable part (page 83)

3

Technical data

Electrical data, dimensions and masses for 3AE5



17.5 kV and NXAIR 50/60 Hz

Article No.	I_r Rated normal current	Width across flats	Pole-center distance	Rated switching sequence: O – 0.3 s – CO – 15 s – CO	t_k Rated short-circuit duration	I_{sc} Rated short-circuit breaking current	DC component in % of the rated short-circuit breaking current	Asymmetric breaking current	I_{ma} Rated short-circuit making current (at 50/60 Hz)	I_{bi} Rated back-to-back capacitor-bank inrush making current	U_p Rated lightning impulse voltage	U_d Rated short-duration power-frequency withstand voltage	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC)	Minimum creepage distance Interrupters	Minimum creepage distance Phase-to-earth	Minimum clearance Phase-to-phase	Minimum clearance Phase-to-earth	Mass[1] (fixed-mounted circuit breaker/withdrawable module)	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram no. (see page 75)
	A	mm	mm		s	kA	%	kA	kA	kA, peak	kV	kV	mV	mm	mm	mm	mm	kg		
3AE5 282-1...	800	310	210	■	3	16	50	17.9	40/42	20	95	38	2.5	240	255	130	135	57/97	A7E44202024	12a
3AE5 282-2...	1250	310	210	■	3	16	50	17.9	40/42	20	95	38	2.5	240	255	130	135	57/97	A7E44202024	12a
3AE5 282-3...	1600	310	210	■	3	16	50	17.9	40/42	20	95	38	2.5	240	255	130	135	63/103	A7E44202024	12a
3AE5 284-1...	800	310	210	■	3	25	50	28	63/65	20	95	38	2.5	240	255	130	135	57/97	A7E44202024	13a
3AE5 284-2...	1250	310	210	■	3	25	50	28	63/65	20	95	38	2.5	240	255	130	135	57/97	A7E44202024	13a
3AE5 284-3...	1600	310	210	■	3	25	50	28	63/65	20	95	38	2.5	240	255	130	135	63/103	A7E44202024	13a
3AE5 284-4...	2000	310	210	■	3	25	50	30.6	63/65	20	95	38	1.8	130	240	196	138	100	A7E10907000	13b
3AE5 284-6...	2500	310	210	■	3	25	50	30.6	63/65	20	95	38	1.8	130	240	196	138	100	A7E10907000	13b
3AE5 285-1...	800	310	210	■	3	31.5	50	38.6	80/82	20	95	38	2.0	130	240	210	143	88	A7E10907000	14b
3AE5 285-2...	1250	310	210	■	3	31.5	50	38.6	80/82	20	95	38	2.0	130	240	210	143	88	A7E10907000	14b
3AE5 285-3...	1600	310	210	■	3	31.5	50	38.6	80/82	20	95	38	2.0	130	240	210	143	88	A7E10907000	14b
3AE5 285-4...	2000	310	210	■	3	31.5	50	38.6	80/82	20	95	38	1.8	130	240	196	138	105	A7E10907000	14a
3AE5 285-6...	2500	310	210	■	3	31.5	50	38.6	80/82	20	95	38	1.8	130	240	196	138	105	A7E10907000	14a
3AE5 624-1...	800	275	160	■	3	25	50	28	63/65	20	95	38	2.5	240	255	130	135	67/–	A7E44202038	13a
3AE5 624-2...	1250	275	160	■	3	25	50	28	63/65	20	95	38	2.5	240	255	130	135	67/–	A7E44202038	13a
3AE5 625-1...	800	275	160	■	3	31.5	50	35.4	80/82	20	95	38	2	130	240	160	143	85	A7E10907005	14b
3AE5 625-2...	1250	275	160	■	3	31.5	50	35.4	80/82	20	95	38	2	130	240	160	143	85	A7E10907005	14b
3AE5 654-4...	2000	310	275	■	3	25	50	30.6	63/65	20	95	38	1.8	130	240	261	138	105	A7E10907000	13b
3AE5 654-6...	2500	310	275	■	3	25	50	30.6	63/665	20	95	38	1.8	130	240	261	138	105	A7E10907000	13b
3AE5 655-2...	1250	310	275	■	3	31.5	50	38.6	80/82	20	95	38	2.0	130	240	275	143	96	A7E10907000	14b
3AE5 655-3...	1600	310	275	■	3	31.5	50	38.6	80/82	20	95	38	2.0	130	240	275	143	96	A7E10907000	14b
3AE5 655-4...	2000	310	275	■	3	31.5	50	38.6	80/82	20	95	38	1.8	130	240	261	138	105	A7E10907000	14a
3AE5 655-6...	2500	310	275	■	3	31.5	50	38.6	80/82	20	95	38	1.8	130	240	261	138	108	A7E10907000	14a
3AE5 664-2...	1250	275	210	■	3	25	50	28	63/65	20	95	38	2.5	240	255	130	135	70/–	A7E44202040	13a
3AE5 664-3...	1600	275	210	■	3	25	50	28	63/65	20	95	38	2.5	240	255	130	135	75/–	A7E44202040	13a
3AE5 665-2...	1250	275	210	■	3	31.5	50	35.4	80/82	20	95	38	2	130	240	196	143	91	A7E10907005	14b
3AE5 665-3...	1600	275	210	■	3	31.5	50	35.4	80/82	20	95	38	2	130	240	196	138	84	A7E10907005	14b
3AE5 665-6...	2500	275	210	■	3	31.5	50	38.5	80/82	20	95	38	1.8	130	240	196	138	110	A7E10907005	14a

■ Standard information on rating plate

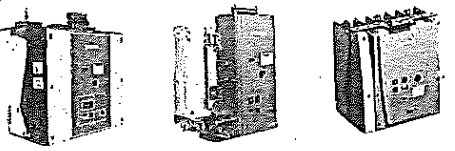
1) The mass of the fixed-mounted circuit breaker, fitted on the withdrawable part, increases by the values specified in the dimension drawing of the withdrawable part (page 83).

17.5 kV 50/60 Hz Article No.	Rated normal current I_r A	Width across flats mm	Pole-center distance mm	Rated switching sequence: O – 0.3 s – CO – 15 s – CO	Rated short-circuit duration t_k s	Rated short-circuit breaking current I_{sc} kA	DC component in % of the rated short-circuit breaking current	Asymmetric breaking current kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Rated back-to-back capacitor-bank inrush making current I_{ss} kA, peak	Rated lightning impulse voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC) mV	Minimum creepage distance Interrupters mm	Minimum creepage distance Phase-to-earth mm	Minimum clearance Phase-to-phase mm	Minimum clearance Phase-to-earth mm	Mass 1) (fixed-mounted circuit breaker/withdrawable module) kg	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram, no. (see page 75)
3AE1 286-2...	1250	310	210	■	3	40	36	44.9	100/104	10	95	38	1.7	145	249	169	140	120/160	A7E44202070	15
3AE1 286-4...	2000	310	210	■	3	40	36	44.9	100/104	10	95	38	1.0	145	249	149	140	160/210	A7E44202071	15
3AE1 286-6...	2500	310	210	■	3	40	36	44.9	100/104	10	95	38	1.0	145	249	149	140	160/210	A7E44202071	15
3AE1 286-7...	3150	310	210	■	3	40	36	44.9	100/104	10	95	38	1.0	145	249	149	140	160/210	A7E44202071	15
3AE1 666-2...	1250	275	210	■	3	40	36	44.9	100/104	10	95	38	1.7	145	249	169	140	120/–	–	15
3AE1 666-6...	2500	275	210	■	3	40	36	44.9	100/104	10	95	38	1.0	145	249	149	140	160/–	–	15
3AE1 666-7...	3150	275	210	■	3	40	36	44.9	100/104	10	95	38	1.0	145	249	149	140	160/–	–	15
3AE1 656-2...	1250	310	275	■	3	40	36	44.9	100/104	10	95	38	1.7	145	155	234	140	125/165	A7E44202068	15
3AE1 656-4...	2000	310	275	■	3	40	36	44.9	100/104	10	95	38	1.0	145	155	214	140	165/205	A7E44202069	15
3AE1 656-6...	2500	310	275	■	3	40	36	44.9	100/104	10	95	38	1.0	145	155	214	140	165/205	A7E44202069	15
3AE1 656-7...	3150	310	275	■	3	40	36	44.9	100/104	10	95	38	1.0	145	155	214	140	165/205	A7E44202069	15

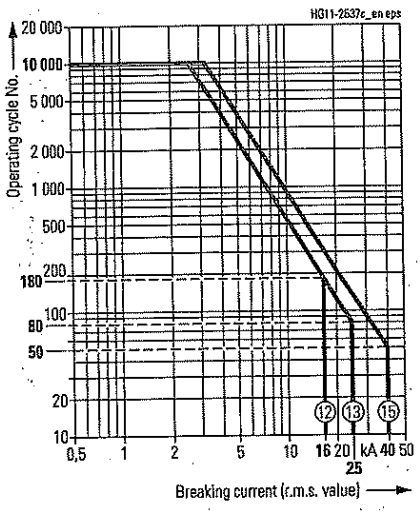
■ Standard information on rating plate

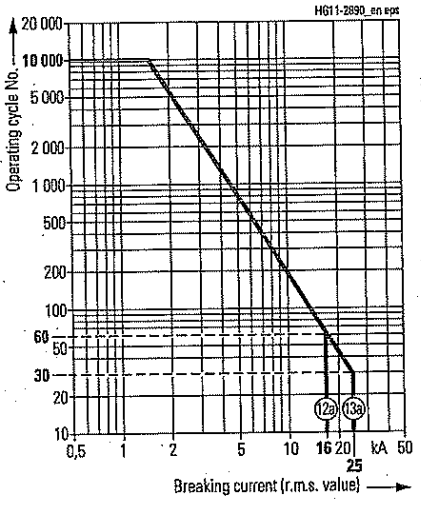
1) The mass of the fixed-mounted circuit breaker, fitted on the withdrawable part, increases by the values specified in the dimension drawing of the withdrawable part (page 83)

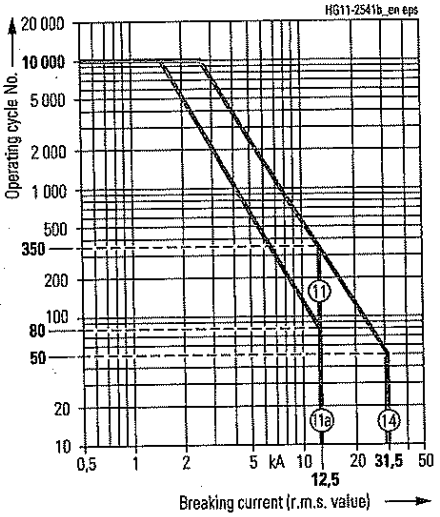
3

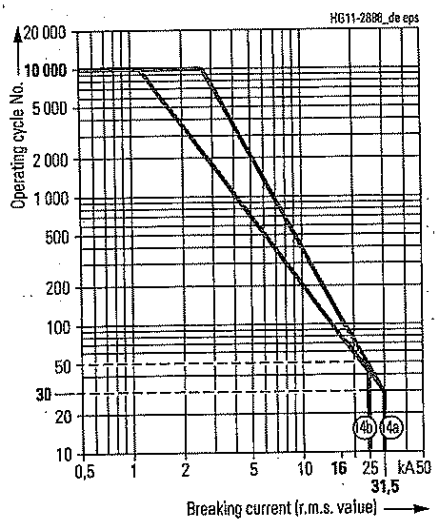


Operating cycle diagrams for 17.5 kV



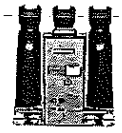






The permissible number of electrical operating cycles is shown as a function of the breaking current (r.m.s. value). All SION vacuum circuit breakers fulfill the endurance classes E2, M2 and C2 according to IEC 62271-100.
The curve shape beyond the parameters defined in IEC 62271-100 is based on average usage data. The number of operating cycles that can actually be reached can be different depending on the respective application.

3



24 kV 50/60 Hz Article No.	Rated normal current I_r A	Width across flats mm	Pole-center distance mm	Rated switching sequence: O – 0.3 s – CO – 15 s – CO	Rated short-circuit duration t_k s	Rated short-circuit breaking current I_{sc} kA	DC component in % of the rated short-circuit breaking current %	Asymmetric breaking current kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Rated back-to-back capacitor-bank inrush making current I_{bi} kA peak	Rated lightning impulse voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC) mV	Minimum creepage distance Interrupters mm	Minimum creepage distance Phase-to-earth mm	Minimum clearance Phase-to-phase mm	Minimum clearance Phase-to-earth mm	Mass [1] (fixed-mounted circuit breaker/withdrawable module) kg	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram no. (see page 78)
3AE5 321-1...	800	310	210	■	3	12.5	50	14.9	31/33	▲	125	50	3	240	250	180	185	65/105	A7E10950000	16a
3AE5 321-2...	1250	310	210	■	3	12.5	50	14.9	31/33	▲	125	50	3	240	250	180	185	65/105	A7E10950000	16a
3AE5 322-1...	800	310	210	■	3	16	50	17.9	40/42	▲	125	50	3	240	250	180	185	65/105	A7E10950000	17a
3AE5 322-2...	1250	310	210	■	3	16	50	17.9	40/42	▲	125	50	3	240	250	180	185	65/105	A7E10950000	17a
3AE5 323-1...	800	310	210	■	3	20	50	22.4	50/52	▲	125	50	3	240	250	180	185	65/105	A7E10950000	18a
3AE5 323-2...	1250	310	210	■	3	20	50	22.4	50/52	▲	125	50	3	240	250	180	185	65/105	A7E10950000	18a
3AE5 324-1...	800	310	210	■	3	25	50	28	63/65	▲	125	50	3	240	250	180	185	65/105	A7E10950000	19a
3AE5 324-2...	1250	310	210	■	3	25	50	28	63/65	▲	125	50	3	240	250	180	185	65/105	A7E10950000	19a
3AE5 352-1...	800	310	275	■	3	16	50	17.9	40/42	▲	125	50	3	240	250	180	185	68/108	A7E10950000	17a
3AE5 352-2...	1250	310	275	■	3	16	50	17.9	40/42	▲	125	50	3	240	250	245	185	68/108	A7E10950000	17a
3AE5 353-1...	800	310	275	■	3	20	50	22.4	50/52	▲	125	50	3	240	250	245	185	68/108	A7E10950000	18a
3AE5 353-2...	1250	310	275	■	3	20	50	22.4	50/52	▲	125	50	3	240	250	245	185	68/108	A7E10950000	18a
3AE5 354-1...	800	310	275	■	3	25	50	28	63/65	▲	125	50	3	240	250	245	185	68/108	A7E10950000	19a
3AE5 354-2...	1250	310	275	■	3	25	50	28	63/65	▲	125	50	3	240	250	245	185	68/108	A7E10950000	19a
3AE5 714-1...	800	310	210	■	3	25	50	28	63/65	▲	125	50	3	240	250	180	185	65/105	A7E10950000	19a
3AE5 714-0...	1000	310	210	■	3	25	50	28	63/65	▲	125	50	3	240	250	180	185	65/105	A7E10950000	19a
3AE5 714-2...	1250	310	210	■	3	25	50	28	63/65	▲	125	50	3	240	250	180	185	65/105	A7E10950000	19a

▲ On request

■ Standard information on rating plate

1) The mass of the fixed-mounted circuit breaker, fitted on the withdrawable part, increases by the values specified in the dimension drawing of the withdrawable part (page 83)

3

24 kV
50/60 Hz

Article No.	Rated normal current I_r	Width across flats	Pole-center distance	Rated switching sequence: O – 0.3 s – CO – 15 s – CO	Rated short-circuit duration t_k	Rated short-circuit breaking current I_{sc}	DC component in % of the rated short-circuit breaking current	Asymmetric breaking current	Rated short-circuit making current (at 50/60 Hz) I_{ma}	Rated back-to-back capacitor-bank inrush making current I_{bi}	Rated lightning impulse voltage U_p	Rated short-duration power-frequency withstand voltage U_d	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC)	Minimum creepage distance Interrupters	Minimum creepage distance Phase-to-earth	Minimum clearance Phase-to-phase	Minimum clearance Phase-to-earth	Mass 1) (fixed-mounted circuit breaker/withdrawable module)	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram no. (see page 78)
	A	mm	mm		s	kA	%	kA	kA	kA peak	kV	kV	mV	mm	mm	mm	mm	kg		
3AE1 321-1...	800	310	210	■	3	12.5	36	14.9	31/33	10	125	50	2.6	200	350	200	210	120/160	A7E44202050	16
3AE1 321-2...	1250	310	210	■	3	12.5	36	14.9	31/33	10	125	50	2.6	200	350	200	210	120/160	A7E44202050	16
3AE1 322-1...	800	310	210	■	3	16	36	17.9	40/42	10	125	50	2.6	200	350	200	210	120/160	A7E44202050	17
3AE1 322-2...	1250	310	210	■	3	16	36	17.9	40/42	10	125	50	2.6	200	350	200	210	120/160	A7E44202050	17
3AE1 322-4...	2000	310	210	■	3	16	36	17.9	40/42	10	125	50	2.0	200	340	200	205	140/180	A7E44202051	17
3AE1 323-1...	800	310	210	■	3	20	36	22.4	50/52	10	125	50	2.6	200	350	200	210	120/160	A7E44202050	18
3AE1 323-2...	1250	310	210	■	3	20	36	22.4	50/52	10	125	50	2.6	200	350	200	210	120/160	A7E44202050	18
3AE1 323-4...	2000	310	210	■	3	20	36	22.4	50/52	10	125	50	2.0	200	340	200	205	140/180	A7E44202051	18
3AE1 323-6...	2500	310	210	■	3	20	36	22.4	50/52	10	125	50	2.0	200	340	200	205	140/180	A7E44202051	18
3AE1 324-1...	800	310	210	■	3	25	36	28	63/65	10	125	50	2.6	200	350	200	210	120/160	A7E44202050	19
3AE1 324-2...	1250	310	210	■	3	25	36	28	63/65	10	125	50	2.6	200	350	200	210	120/160	A7E44202050	19
3AE1 324-4...	2000	310	210	■	3	25	36	28	63/65	10	125	50	2.0	200	340	200	205	140/180	A7E44202051	19
3AE1 324-6...	2500	310	210	■	3	25	36	28	63/65	10	125	50	2.0	200	340	200	205	140/180	A7E44202051	19
3AE1 352-1...	800	310	275	■	3	16	36	17.9	40/42	10	125	50	2.6	200	350	265	210	130/180	A7E44202052	17
3AE1 352-2...	1250	310	275	■	3	16	36	17.9	40/42	10	125	50	2.6	200	350	265	210	130/180	A7E44202052	17
3AE1 352-4...	2000	310	275	■	3	16	36	17.9	40/42	10	125	50	2.0	200	340	265	205	150/200	A7E44202053	17
3AE1 353-1...	800	310	275	■	3	20	36	22.4	50/52	10	125	50	2.6	200	350	265	210	130/180	A7E44202052	18
3AE1 353-2...	1250	310	275	■	3	20	36	22.4	50/52	10	125	50	2.6	200	350	265	210	130/180	A7E44202052	18
3AE1 353-4...	2000	310	275	■	3	20	36	22.4	50/52	10	125	50	2.0	200	340	265	205	150/200	A7E44202053	18
3AE1 353-6...	2500	310	275	■	3	20	36	22.4	50/52	10	125	50	2.0	200	340	265	205	150/200	A7E44202053	18

■ Standard information on rating plate

1) The mass of the fixed-mounted circuit breaker, fitted on the withdrawable part, increases by the values specified in the dimension drawing of the withdrawable part (page 83)

3

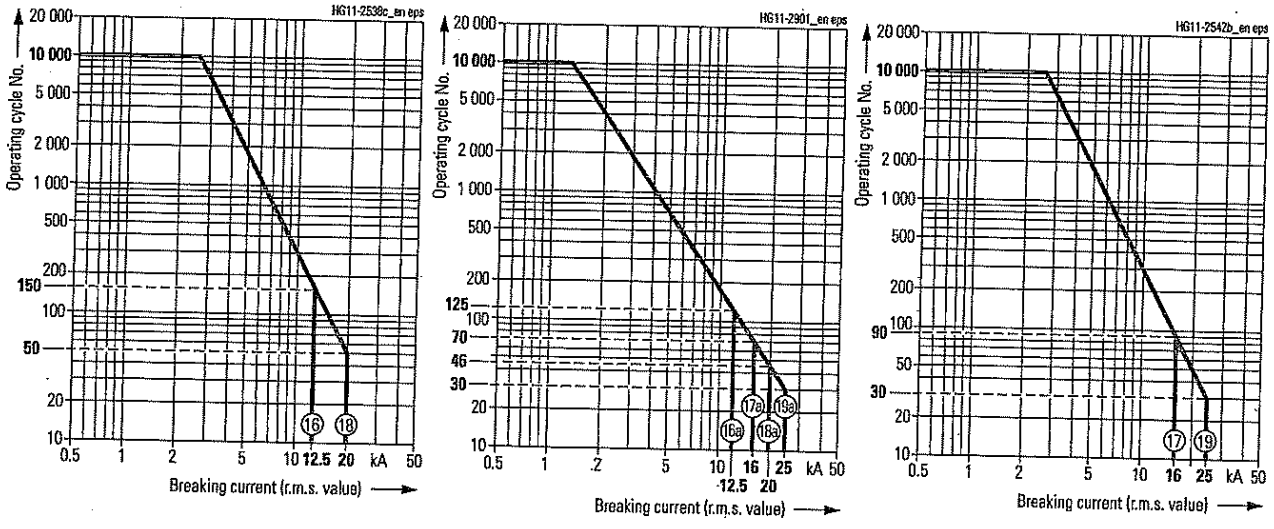
24 kV 50/60 Hz Article No.	Rated normal current I_r A	Width across flats mm	Pole-center distance mm	Rated switching sequence: O – 0.3 s – CO – 15 s – CO	Rated short-circuit duration t_k s	Rated short-circuit breaking current I_{sc} kA	DC component in % of the rated short-circuit breaking current	Asymmetric breaking current kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Rated back-to-back capacitor-bank inrush making current I_{bi} kA peak	Rated lightning impulse voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC) mV	Minimum creepage distance, Interrupters mm	Minimum creepage distance, Phase-to-earth mm	Minimum clearance, Phase-to-phase mm	Minimum clearance, Phase-to-earth mm	Mass [1] (fixed-mounted circuit-breaker/withdrawable module) kg	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram No. (see below)
3AE1 354-1...	800	310	275	■	3	25	36	28	63/65	10	125	50	2.6	200	350	265	210	130/180	A7E44202052	19
3AE1 354-2...	1250	310	275	■	3	25	36	28	63/65	10	125	50	2.6	200	350	265	210	130/180	A7E44202052	19
3AE1 354-4...	2000	310	275	■	3	25	36	28	63/65	10	125	50	2.0	200	340	265	205	150/200	A7E44202053	19
3AE1 354-6...	2500	310	275	■	3	25	36	28	63/65	10	125	50	2.0	200	340	265	205	150/200	A7E44202053	19
3AE1 714-2...	1250	320	210	■	3	25	36	28	63/65	10	125	50	2.6	200	350	200	210	120/–	–	19
3AE1 744-4...	2000	320	275	■	3	25	36	28	63/65	10	125	50	2.0	200	340	200	205	150/–	–	19
3AE1 744-6...	2500	320	275	■	3	25	36	44.9	63/65	10	125	50	2.0	200	340	200	205	150/–	–	19

■ Standard information on rating plate

1) The mass of the fixed-mounted circuit breaker, fitted on the withdrawable part, increases by the values specified in the dimension drawing of the withdrawable part (page 83)

3

Operating cycle diagrams for 24 kV

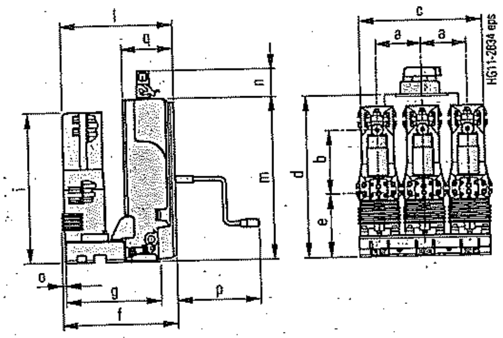


The permissible number of electrical operating cycles is shown as a function of the breaking current (r.m.s. value). All SION vacuum circuit breakers fulfill the endurance classes E2, M2 and C2 according to IEC 62271-100.

The curve shape beyond the parameters defined in IEC 62271-100 is based on average usage data. The number of operating cycles that can actually be reached can be different depending on the respective application.

Dimension drawings for 7.2 to 24 kV

Vacuum circuit breaker without contact arm



Voltage level	Pole-center distance a mm	Width across flats b mm	c mm	d mm	e mm	f mm	g mm	i mm	l mm	m mm	n mm	o mm	p mm	q mm
7.2 kV	150	205	445	540	217.5	380	329	500.5 1)2)	371	540	105	8	305	169
	150	275	445	540	217.5	380	329	500.5 1)2)	371	540	105	8	305	169
	150	310	445	540	237.5	380	329	500.5 1)2)	371	540	105	8	305	169
	160	205	465	540	217.5	380	329	500.5 1)2)	371	540	105	8	305	169
	160	275	465	540	217.5	380	329	500.5 1)2)	371	540	105	8	305	169
	160	310	465	540	237.5	380	329	500.5 1)2)	371	540	105	8	305	169
	210	205	565	540	217.5	380	329	500.5 1)	371	540	105	8	305	169
	210	275	565	540	217.5	380	329	500.5 1)	371	540	105	8	305	169
	210	310	565	540	237.5	380	329	500.5 1)	371	540	105	8 3)	305	169
12 kV	150	205	445	540	217.5	380	329	500.5 1)2)	371	540	105	8	305	169
	150	275	445	540	217.5	380	329	500.5 1)2)	371	540	105	8	305	169
	150	310	445	540	237.5	380	329	500.5 1)2)	371	540	105	8	305	169
	160	205	465	540	217.5	380	329	500.5 1)2)	371	540	105	8	305	169
	160	275	465	540	217.5	380	329	500.5 1)2)	371	540	105	8	305	169
	160	310	465	540	237.5	380	329	500.5 1)2)	371	540	105	8	305	169
	210	205	565	540	217.5	380	329	500.5 1)	371	540	105	8	305	169
	210	275	565	540	217.5	380	329	500.5 1)	371	540	105	8	305	169
	210	310	565	540	237.5	380	329	500.5 1)	371	540	105	8	305	169
	275	310	565	540	237.5	380	329	500.5 1)	371	540	105	30	305	169
17.5 kV	150	205	445	540	217.5	380	329	540	371	540	105	8	305	169
	150	275	445	540	217.5	380	329	540	371	540	105	8	305	169
	150	310	445	540	237.5	380	329	540	371	540	105	8	305	169
	160	205	465	540	217.5	380	329	540	371	540	105	8	305	169
	160	275	465	540	217.5	380	329	540	371	540	105	8	305	169
	160	310	465	540	237.5	380	329	540	371	540	105	8	305	169
	210	205	565	540	217.5	380	329	540	371	540	105	8	305	169
	210	275	565	540	217.5	380	329	540	371	540	105	8	305	169
	210	310	565	540	237.5	380	329	540	371	540	105	8	305	169
	275	310	565	540	237.5	380	329	540	371	540	105	30	305	169
24 kV	210	310	570	540	283	459	399	667	421	540	105	7	305	169
	275	310	695	540	283	459	399	667	421	540	105	7	305	169

Note: Small deviations of the dimensions are permissible

1) At I_{sc} = 31.5 kA or at I_r = 1600 A --> 540 mm
2) At I_{sc} = 31.5 kA --> 552 mm
3) At I_r >1600 A --> 30 mm

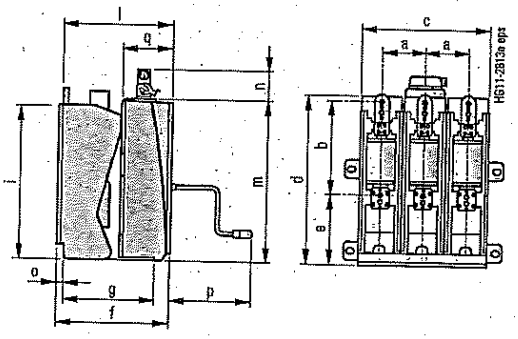
3

ВЯРНО С ОРИГИНАЛА

МИГ 23 ЕООД СОФИЯ MIG 23 LTD

Dimension drawings for 7.2 to 24 kV

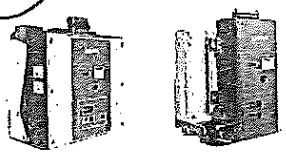
Vacuum circuit breaker without contact arm



Voltage level	Pole-center distance a mm	Width across flats b mm	c mm	d mm	e mm	f mm	g mm	i mm	l mm	m mm	n mm	o mm	p mm	q mm
7.2 kV	210	310	565	540 [5]	237.5	380 [1]	300 [2] [6]	523 [3] [7]	371 [4]	540	105	30 [8]	279	165
12 kV	210	275	565	540 [5]	217.5	380	300 [6]	523 [7]	371	540	105	30	279	165
	210	310	565	540 [5]	237.5	380 [1]	300 [2] [6]	523 [3] [7]	371 [4]	540	105	30 [8]	279	165
17.5 kV	210	275	565	562	217.5	380	310	517.5	371	540	105	30	279	165
	210	310	565	562	237.5	380 [1]	310 [2]	517.5 [3]	371 [4]	540	105	30 [8]	279	165
24 kV	210	310	570	739	283	469	360	739	421	540	105	58	279	165
	275	310	700	739	283	469	360	739	421	540	105	58	279	165

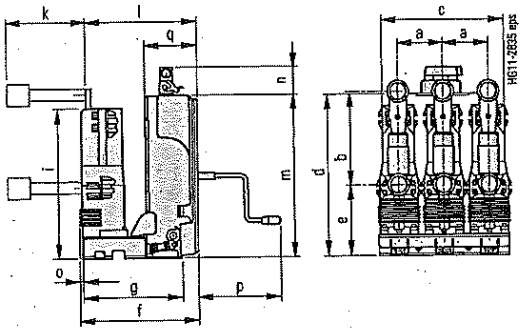
Note: Small deviations of the dimensions are permissible

1) At I_{sc} = 40 kA --> 450 mm
2) At I_{sc} = 40 kA --> 350 mm
3) At I_{sc} = 40 kA --> 610 mm
4) At I_{sc} = 40 kA --> 420 mm
5) At I_n >1250 A or at I_{sc} = 31.5 kA --> 562 mm
6) At I_n >1250 A or at I_{sc} = 31.5 kA --> 310 mm
7) At I_n >1250 A or at I_{sc} = 31.5 kA --> 518 mm
8) At I_{sc} = 40 kA --> 50 mm



Dimension drawings for 7.2 to 24 kV

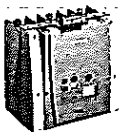
Vacuum circuit breaker with contact arm



Voltage level	Pole-center distance a mm	Width across flats b mm	c mm	d mm	e mm	f mm	g mm	i mm	k mm	l mm	m mm	n mm	o mm	p mm	q mm
7.2 kV	150	205	445	540	217.5	380	329	500.5 1)2)	274	371	540	105	8	305	169
	150	275	445	540	217.5	380	329	500.5 1)2)	274	371	540	105	8	305	169
	150	310	445	540	237.5	380	329	500.5 1)2)	274	371	540	105	8	305	169
	160	205	465	540	217.5	380	329	500.5 1)2)	274	371	540	105	8	305	169
	160	275	465	540	217.5	380	329	500.5 1)2)	274	371	540	105	8	305	169
	160	310	465	540	237.5	380	329	500.5 1)2)	274	371	540	105	8	305	169
	210	205	565	540	217.5	380	329	500.5 1)	274	371	540	105	8	305	169
	210	275	565	540	217.5	380	329	500.5 1)	274	371	540	105	8	305	169
	210	310	565	540	237.5	380	329	500.5 1)	274	371	540	105	8 3)	305	169
12 kV	150	205	445	540	217.5	380	329	500.5 1)2)	274	371	540	105	8	305	169
	150	275	445	540	217.5	380	329	500.5 1)2)	274	371	540	105	8	305	169
	150	310	445	540	237.5	380	329	500.5 1)2)	274	371	540	105	8	305	169
	160	205	465	540	217.5	380	329	500.5 1)2)	274	371	540	105	8	305	169
	160	275	465	540	217.5	380	329	500.5 1)2)	274	371	540	105	8	305	169
	160	310	465	540	237.5	380	329	500.5 1)2)	274	371	540	105	8	305	169
	210	205	565	540	217.5	380	329	500.5 1)	274	371	540	105	8	305	169
	210	275	565	540	217.5	380	329	500.5 1)	274	371	540	105	8	305	169
	210	310	565	540	237.5	380	329	500.5 1)	274	371	540	105	8	305	169
	275	310	695	540	237.5	380	329	500.5 1)	274	371	540	105	30	305	169
17.5 kV	150	205	445	540	217.5	380	329	540	274	371	540	105	8	305	169
	150	275	445	540	217.5	380	329	540	274	371	540	105	8	305	169
	150	310	445	540	237.5	380	329	540	274	371	540	105	8	305	169
	160	205	465	540	217.5	380	329	540	274	371	540	105	8	305	169
	160	275	465	540	217.5	380	329	540	274	371	540	105	8	305	169
	160	310	465	540	237.5	380	329	540	274	371	540	105	8	305	169
	210	205	565	540	217.5	380	329	540	274	371	540	105	8	305	169
	210	275	565	540	217.5	380	329	540	274	371	540	105	8	305	169
	210	310	565	540	237.5	380	329	540	274	371	540	105	8	305	169
	275	310	695	540	237.5	380	329	540	274	371	540	105	30	305	169
24 kV	210	310	570	540	283	459	399	667	325	421	540	105	7	305	169
	275	310	695	540	283	459	399	667	325	421	540	105	7	305	169

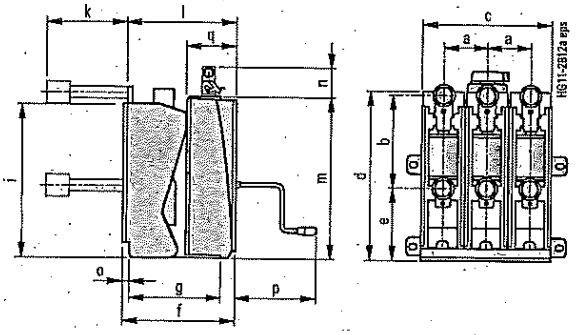
Note: Small deviations of the dimensions are permissible

1) At I_{sc} = 31.5 kA or at I_r = 1600 A --> 540 mm
2) At I_{sc} = 31.5 kA --> 552 mm
3) At I_r >1600 A --> 30 mm



Dimension drawings for 7.2 to 24 kV

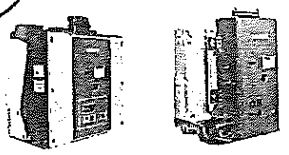
Vacuum circuit breaker with contact arm



Voltage level	Pole-center distance a mm	Width across flats b mm	c mm	d mm	e mm	f mm	g mm	i mm	k mm	l mm	m mm	n mm	o mm	p mm	q mm
7.2 kV	210	310	565	540 5)	237.5	380 1)	300 2) 6)	523 3) 7)	274	371 4)	540	105	30 8)	279	165
12 kV	210	275	565	540 5)	217.5	380	300 6)	523 7)	274	371	540	105	30	279	165
	210	310	565	540 5)	237.5	380 1)	300 2) 6)	523 3) 7)	274	371 4)	540	105	30 8)	279	165
17.5 kV	210	275	565	562	217.5	380	310	517.5	274	371	540	105	30	279	165
	210	310	565	562	237.5	380 1)	310 2)	517.5 3)	274	371 4)	540	105	30 8)	279	165
24 kV	210	310	570	739	283	469	360	739	324	421	540	105	58	279	165
	275	310	700	739	283	469	360	739	324	421	540	105	58	279	165

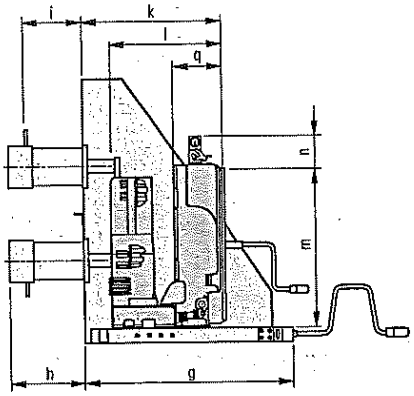
Note: Small deviations of the dimensions are permissible

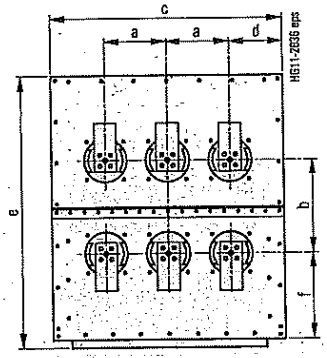
1) At I_{sc} = 40 kA --> 450 mm
2) At I_{sc} = 40 kA --> 350 mm
3) At I_{sc} = 40 kA --> 610 mm
4) At I_{sc} = 40 kA --> 420 mm
5) At I_n >1250 A or at I_{sc} = 31.5 kA --> 562 mm
6) At I_n >1250 A or at I_{sc} = 31.5 kA --> 310 mm
7) At I_n >1250 A or at I_{sc} = 31.5 kA --> 518 mm
8) At I_{sc} = 40 kA --> 50 mm



Dimension drawings for 7.2 to 24 kV

Cartridge without earthing switch

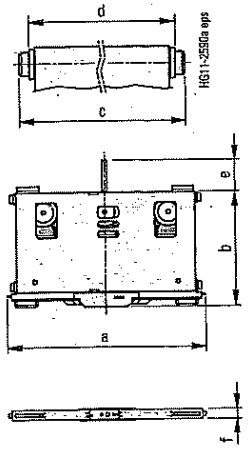




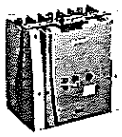
Voltage level	Pole-center distance a mm	Width across flats b mm	c mm	d mm	e mm	f mm	g mm	h mm	i mm	k mm	l mm	m mm	n mm	q mm
7.2 kV	150	275	594	147	850	266.5	710	263	224	476	371	540	105	169
	150	310	594	147	905	286.5	710	263	224	476	371	540	105	169
	210	275	794	187	850	266.5	710	263	224	476	371	540	105	169
	210	310	794	187	905	286.5	710	263	224	476	371	540	105	169
12 kV	150	275	594	147	850	266.5	710	263	224	476	371	540	105	169
	150	310	594	147	905	286.5	710	263	224	476	371	540	105	169
	210	275	794	187	850	266.5	710	263	224	476	371	540	105	169
	210	310	794	187	905	286.5	710	263	224	476	371	540	105	169
	275	310	994	222	905	286.5	710	263	224	476	371	540	105	169
17.5 kV	150	205	594	147	850	266.5	710	263	224	476	371	540	105	169
	150	275	594	147	905	286.5	710	263	224	476	371	540	105	169
	210	205	794	187	850	266.5	710	263	224	476	371	540	105	169
	210	275	794	187	905	286.5	710	263	224	476	371	540	105	169
	275	310	994	222	905	286.5	710	263	224	476	371	540	105	169
24 kV	210	310	794	187	1040.5	332	810	323	274	537	421	540	105	169
	275	310	994	222	1040.5	332	810	323	274	537	421	540	105	169

Note: Small deviations of the dimensions are permissible

Withdrawable part

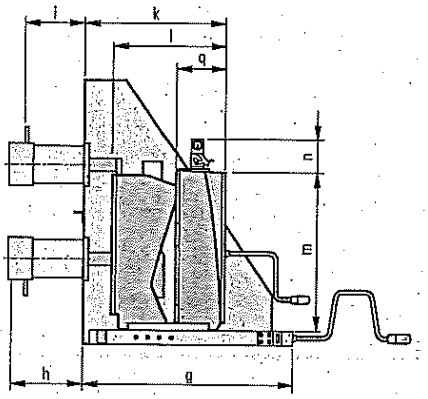


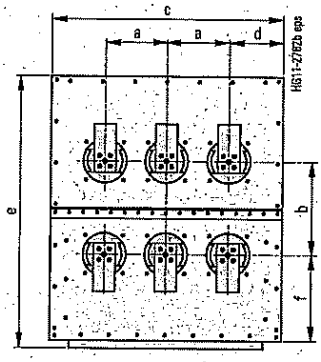
Voltage level	Pole-center distance mm	a mm	b mm	c mm	d mm	e mm	f mm	Mass
7.2 kV	150	529	424	500	470	107	42	approx. 15 kg
	160	529	424	500	470	107	42	approx. 15 kg
	210	679	424	650	620	107	42	approx. 20 kg
12 kV	150	529	424	500	470	107	42	approx. 15 kg
	160	529	424	500	470	107	42	approx. 15 kg
	210	679	424	650	620	107	42	approx. 20 kg
17.5 kV	150	529	424	500	470	107	42	approx. 15 kg
	160	529	424	500	470	107	42	approx. 15 kg
	210	679	424	650	620	107	42	approx. 20 kg
24 kV	210	679	424	650	620	107	42	approx. 20 kg
	275	879	424	850	820	107	42	approx. 25 kg



Dimension drawings for 7.2 to 24 kV

Cartridge without earthing switch





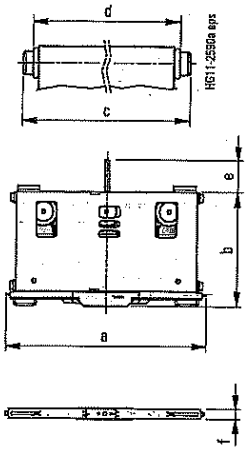
Voltage level	Pole-center distance a mm	Width across flats b mm	c mm	d mm	e mm	f mm	g mm	h mm	h' mm	i mm	i' mm	k mm	l mm	m mm	n mm	q mm
7.2 kV	210	310	794	187	905	286.5	710 1)	263	323	224	274	476 2)	371 3)	540	105	165
12 kV	210	275	794	187	850	286.5	710	263	–	224	–	476	371	540	105	165
	210	310	794	187	905	286.5	710 1)	263	323	224	274	476 2)	371 3)	540	105	165
17.5 kV	210	275	794	187	850	286.5	710	263	–	224	–	476	371	540	105	165
	210	310	794	187	905	286.5	710 1)	263	323	224	274	476 2)	371 3)	540	105	165
24 kV	210	310	794	187	1040.5	332	810	323	323	274	323	537	421	540	105	165
	275	310	994	222	1040.5	332	810	323	323	274	323	537	421	540	105	165

h/i = up to I_r = 1250 A
h'/i' = at I_r = 2000 A, 2500 A and 3150 A

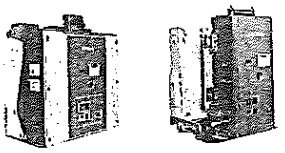
Note: Small deviations of the dimensions are permissible

1) At I_{sc} = 40 kA --> 760 mm
2) At I_{sc} = 40 kA --> 526 mm
3) At I_{sc} = 40 kA --> 420 mm

Withdrawable part

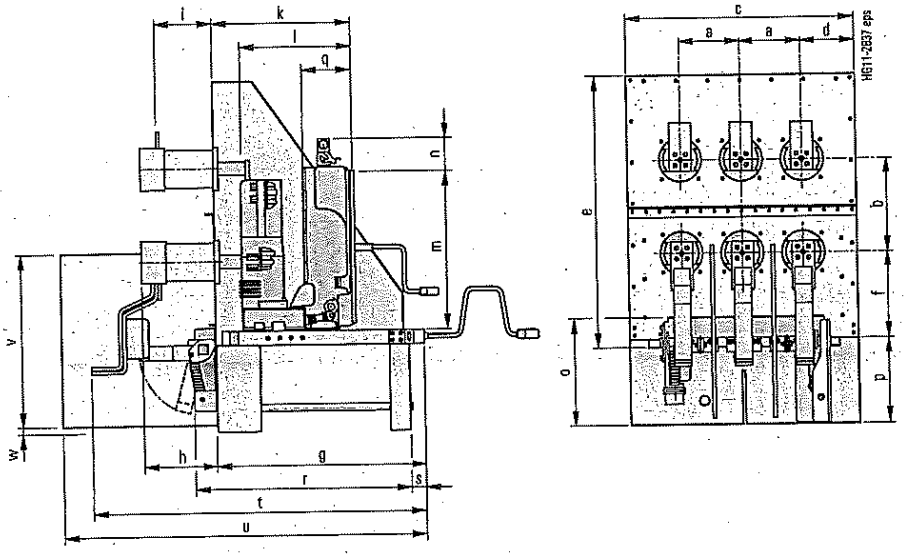


Voltage level	Pole-center distance mm	a mm	b mm	c mm	d mm	e mm	f mm	Mass
7.2 kV	210	679	424	650	620	107	42	approx. 20 kg
12 kV	210	679	424	650	620	107	42	approx. 20 kg
17.5 kV	210	679	424	650	620	107	42	approx. 20 kg
24 kV	210	679	424	650	620	107	42	approx. 20 kg
	275	879	424	850	820	107	42	approx. 25 kg



Dimension drawings for 7.2 to 24 kV

Cartridge with earthing switch



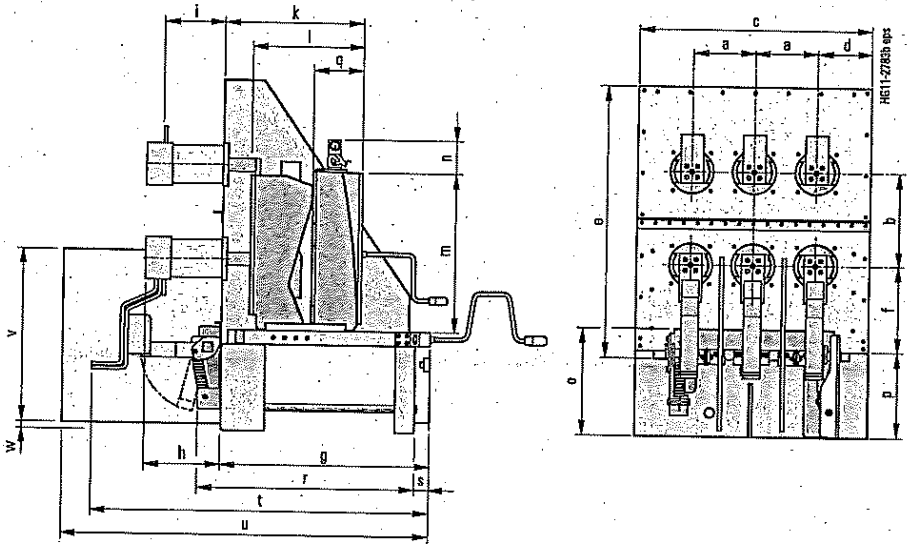
Voltage level	Pole-center distance a mm	Width across flats b mm	c mm	d mm	e mm	f mm	g mm	h mm	i mm	k mm	l mm	m mm	n mm
7.2 kV	150	275	594	147	850	266.5	710	263	224	476	371	540	105
	150	310	594	147	905	286.5	710	263	224	476	371	540	105
	210	275	794	187	850	266.5	710	263	224	476	371	540	105
	210	310	794	187	905	286.5	710	263	224	476	371	540	105
12 kV	150	275	594	147	850	266.5	710	263	224	476	371	540	105
	150	310	594	147	905	286.5	710	263	224	476	371	540	105
	210	275	794	187	850	266.5	710	263	224	476	371	540	105
	210	310	794	187	905	286.5	710	263	224	476	371	540	105
	275	310	994	222	905	286.5	710	263	224	476	371	540	105
17.5 kV	150	275	594	147	850	266.5	710	263	224	476	371	540	105
	150	310	594	147	905	286.5	710	263	224	476	371	540	105
	210	275	794	187	850	266.5	710	263	224	476	371	540	105
	210	310	794	187	905	286.5	710	263	224	476	371	540	105
	275	310	994	222	905	286.5	710	263	224	476	371	540	105
24 kV	210	310	794	187	1040.5	332	810	323	274	537	421	540	105
	275	310	994	222	1040.5	332	810	323	274	537	421	540	105

Voltage level	o mm	p mm	q mm	r mm	s mm	t mm	u mm	v mm	w mm
7.2 kV	359	287	169	803	64	1142	1233	575	25
	363	287	169	803	64	1142	1233	575	25
	359	287	169	803	65	1143	1234	-	-
	359	287	169	803	65	1142	1234	-	-
12 kV	359	287	169	803	64	1142	1233	575	25
	363	287	169	803	64	1142	1233	575	25
	359	287	169	803	65	1143	1234	-	-
	359	287	169	803	65	1143	1234	-	-
	-	-	-	803	-	-	-	-	-
17.5 kV	359	287	169	803	64	1142	1233	575	25
	363	287	169	803	64	1142	1233	575	25
	359	287	169	803	65	1143	1234	-	-
	359	287	169	803	65	1143	1234	-	-
	-	-	-	803	-	-	-	-	-
24 kV	359	287	169	902	64	1243	1433	575	10
	359	287	169	902	65	1243	1433	-	-

Note: Small deviations of the dimensions are permissible

Dimension drawings for 7.2 to 24 kV

Cartridge with earthing switch



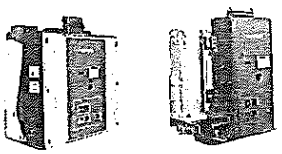
Voltage level	Pole-center distance a mm	Width across flats b mm	c mm	d mm	e mm	f mm	g mm	h mm	h' mm	i mm	i' mm	k mm	l mm	m mm	n mm
7.2 kV	210	310	794	187	905	286.5	710 1)	263	323	224	274	476 2)	371 3)	540	105
12 kV	210	275	794	187	850	266.5	710	263	–	224	–	476	371	540	105
	210	310	794	187	905	286.5	710 1)	263	323	224	274	476 2)	371 3)	540	105
17.5 kV	210	275	794	187	850	266.5	710	263	–	224	–	476	371	540	105
	210	310	794	187	905	286.5	710 1)	263	323	224	274	476 2)	371 3)	540	105
24 kV	210	310	794	187	1040.5	332	810	323	323	274	323	537	421	540	105
	275	310	994	222	1040.5	332	810	323	323	274	323	537	421	540	105

Voltage level	o mm	p mm	q mm	r mm	s mm	t mm	u mm	v mm	w mm
7.2 kV	359	287	165	803	65	1142	1234	–	–
12 kV	359	287	165	803	65	1143	1234	–	–
	359	287	165	803	65	1143	1234	–	–
17.5 kV	359	287	165	803	65	1143	1234	–	–
	359	287	165	803	65	1143	1234	–	–
24 kV	359	287	165	902	64	1243	1433	575	10
	359	287	165	902	65	1243	1433	–	–

h/i = up to I_r = 1250 A
h'/i' = at I_r = 2000 A, 2500 A and 3150 A

Note: Small deviations of the dimensions are permissible

1) At I_{sc} = 40 kA –> 760 mm
2) At I_{sc} = 40 kA –> 526 mm
3) At I_{sc} = 40 kA –> 420 mm



Operating times and internal times for 3AE5

Operating times at rated voltage of the secondary circuit	Equipment of circuit breaker	Circuit breaker operating time
Closing time	–	≤ 60 ms
Opening time	1st shunt release	≤ 30 ms
	2nd and 3rd release	≤ 45 ms
Arcing time	–	< 15 ms
Break time	1st shunt release	≤ 45 ms
	2nd and 3rd release	≤ 60 ms
CLOSE/OPEN contact time	1st shunt release	≤ 60 ms
	2nd and 3rd release	≤ 75 ms
Minimum command duration	Closing solenoid	45 ms
	1st shunt release	40 ms
	2nd and 3rd release	20 ms
Pulse time for circuit breaker tripping signal	1st shunt release	> 10 ms
	2nd and 3rd release	> 6 ms
Charging time for electrical operation		< 15 s
Synchronism error between the poles		≤ 2 ms

Motor short-circuit protection (fuse protection of drive motors) for 3AE5

Rated voltage of the motor	Operating voltage		Power consumption of the motor	Smallest possible rated current [1] of the miniature circuit breaker with C-characteristic
V	max. V	min. V	W/VA	A
24 DC	26	20	140	6
48 DC	53	41	140	3
60 DC	66	51	150	3
110 DC	121	93	280	3
220 DC	242	187	260	1.2
110 AC	121	93	280	3
230 AC	244	187	260	1.2

1) The inrush current in the drive motor can be neglected due to its very short presence.

Consumption data of releases for 3AE5

Release	Power consumption		Tripping ranges	
	Operation at		Tripping voltage	Tripping voltage or tripping current
	DC approx. W	AC 50/60 Hz approx. VA	at DC	at AC 50/60 Hz
Closing solenoid 3AY14 10	300 – 370	300 – 370	85 to 110 % U	85 to 110 % U
1st shunt release (without stored-energy mechanism) 3AY14 10	300	300	70 to 110 % U	85 to 110 % U
2nd and 3rd shunt release (with stored-energy mechanism) 3AX11 01	70	50	70 to 110 % U	85 to 110 % U
Undervoltage release 3AX11 03	20	20	35 to 0 % U	35 to 0 % U
Current-transformer-operated release 3AX. (rated normal current 0.5 A, 1 A or 5 A)	–	10 [2]	–	90 to 110 % I_a
Current-transformer-operated release 3AX11 04 (tripping pulse ≥ 0.1 Ws)	–	–	–	–

2) Consumption at pickup current (90 % of the rated normal current) and open armature.

Operating times and internal times, short-circuit protection of motors, consumption data of the releases

Operating times and internal times for 3AE1

Operating times at rated voltage of the secondary circuit	Equipment of circuit breaker	Circuit breaker operating time
Closing time	–	< 60 ms
Opening time	1st shunt release	< 60 ms
	2nd release	< 45 ms
Arcing time	–	< 15 ms
Break time	1st shunt release	< 75 ms
	2nd release	< 60 ms
CLOSE/OPEN contact time	1st shunt release	< 75 ms
	2nd release	< 60 ms
Minimum command duration	Closing solenoid	45 ms
	1st shunt release	40 ms
	2nd release	20 ms
Pulse time for circuit breaker tripping signal	1st shunt release	> 15 ms
	2nd release	> 10 ms
Charging time for electrical operation		< 15 s
Synchronism error between the poles		≤ 2 ms

Motor short-circuit protection (fuse protection of drive motors) for 3AE1

Rated voltage of the motor	Operating voltage		Power consumption of the motor	Smallest possible rated current [1] of the miniature circuit breaker with C-characteristic
V	max. V	min. V	W/VA	A
24 DC [2]	26	20	520 – 590	8
48 DC	53	41	470 – 600	6
60 DC	66	51	520 – 610	4
110 DC	121	93	650 – 740	4
220 DC	242	187	610 – 900	1.6
110 AC	121	93	670 – 740 VA	2
230 AC	244	187	620 – 960 VA	1.6

1) The inrush current in the drive motor can be neglected due to its very short presence.
2) Does not apply to a rated short-circuit breaking current of 40 kA

Consumption data of releases for 3AE1

Release	Power consumption		Tripping ranges	
	Operation at		Tripping voltage	Tripping voltage or tripping current
	DC approx. W	AC 50/60 Hz approx. VA	at DC	at AC 50/60 Hz
Closing solenoid 3AY15 10	140 – 210	140 – 210	85 to 110 % U	85 to 110 % U
1st shunt release (without stored-energy mechanism) 3AY15 10	140	140	70 to 110 % U	85 to 110 % U
2nd shunt release (with stored-energy mechanism) 3AX11 01	70	50	70 to 110 % U	85 to 110 % U
Undervoltage release 3AX11 03	20	20	35 to 0 % U	35 to 0 % U
Current-transformer-operated release 3AX (rated normal current 0.5 A, 1 A or 5 A)	–	10 [2]	–	90 to 110 % I_n
Current-transformer-operated release 3AX11 04 (tripping pulse ≥ 0.1 Ws)	–	–	–	–

2) Consumption at pickup current (90 % of the rated normal current) and open armature.

Circuit diagrams
for 3AE5 and 3AE1

Circuit diagrams for 3AE5 and 3AE1 can be found at the Siemens Industry Online Support (SIOS):

http://support.industry.siemens.com/

Circuit manual 3AE5 (64-pole): SA7E449 99009 021

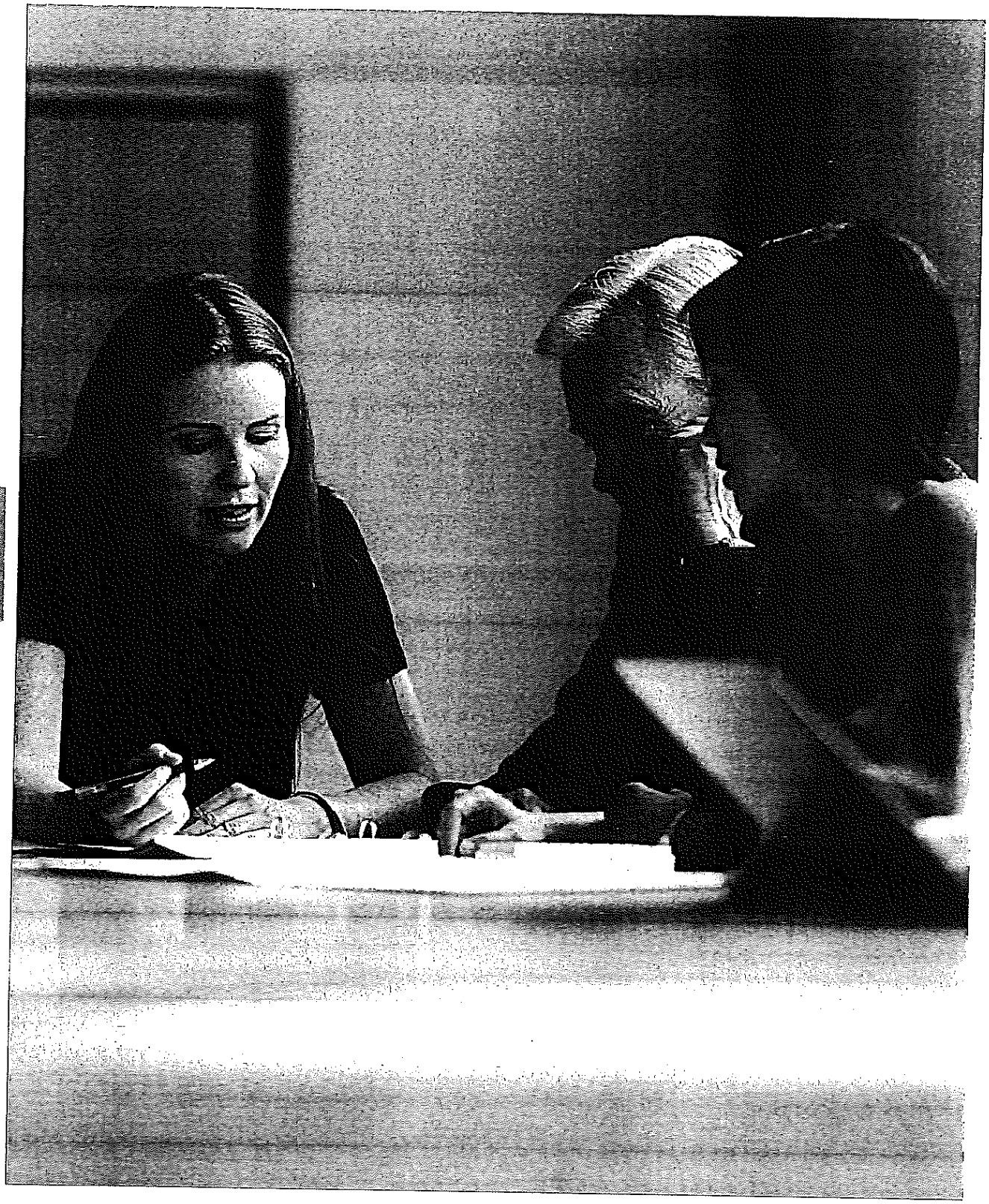
Circuit manual 3AE5 (24-pole): SA7E449 99009 022

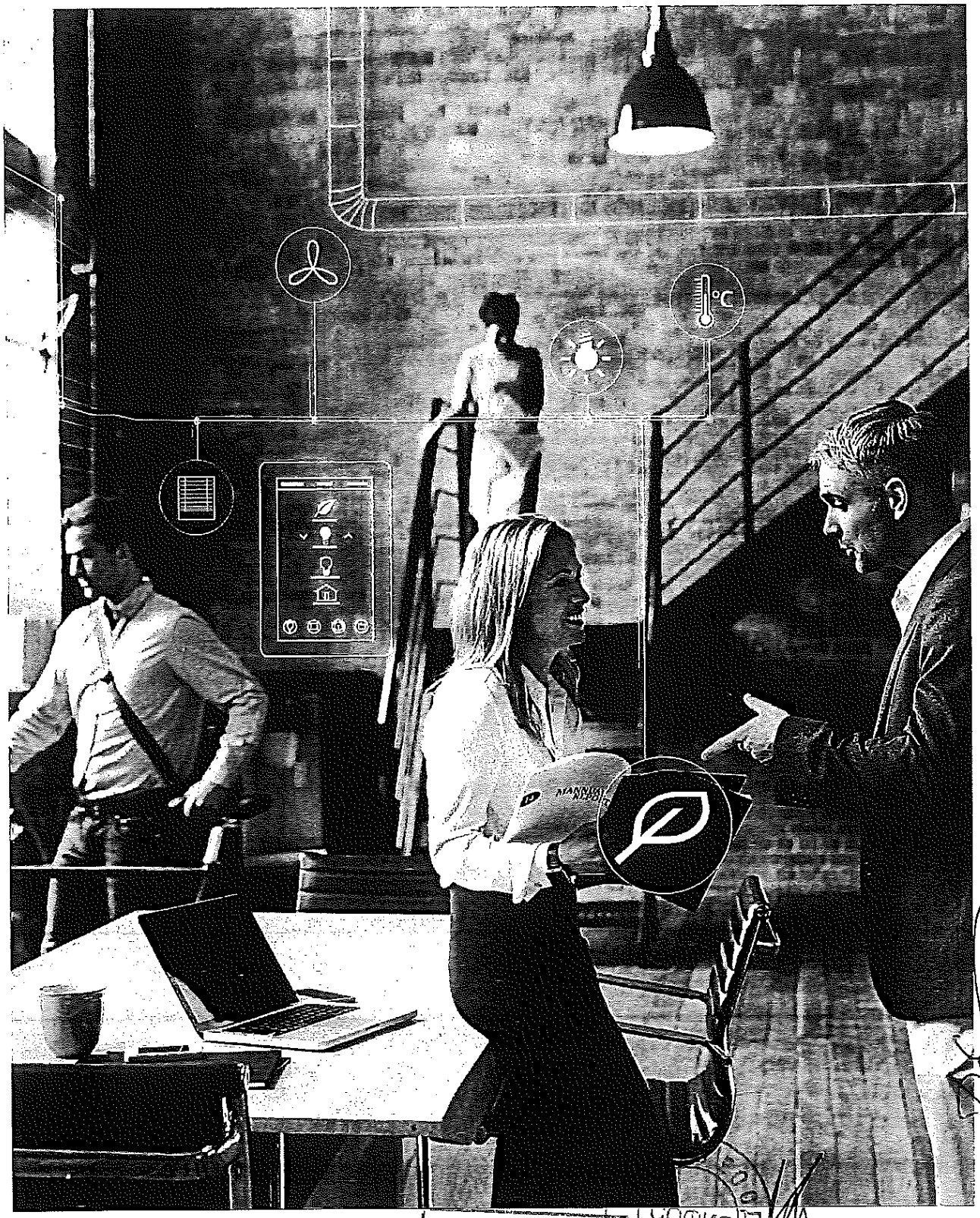
Circuit manual 3AE5 (20-pole): SA7E449 99009 013

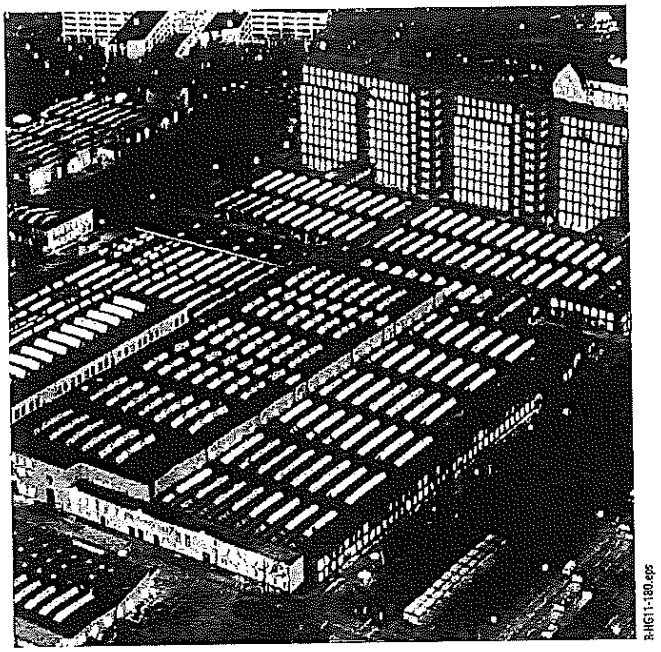
Circuit manual 3AE1 (64-pole): SA7E449 99007 001

Circuit manual 3AE1 (24-pole): SA7E449 99007 002

Circuit manual 3AE1 (27-pole): SA7E449 99007 003







Switchgear Factory in Berlin, Germany

Contents

4

Please copy, fill in and return to your Siemens partner.

Inquiry concerning

SION vacuum circuit breaker from 7.2 kV to 24 kV

Please

☐ Submit an offer
☐ Call us
☐ Visit us

Your address

Company

Department

Name

Street

Postal code/ city

Country

Phone

Fax

Email

Siemens AG

Department

Name

Street

Postal code/ city

Country

Fax

Technical data

				Other values
Rated voltage	☐ 7.2 kV ☐ 24 kV	☐ 12 kV	☐ 17.5 kV	☐ ___ kV
Rated lightning impulse withstand voltage	☐ 60 kV ☐ 125 kV	☐ 75 kV	☐ 95 kV	☐ ___ kV
Rated short-duration power-frequency withstand voltage	☐ 20 kV ☐ 42 kV	☐ 28 kV ☐ 50 kV	☐ 38 kV ☐ 55 kV	☐ ___ kV
Rated short-circuit breaking current	☐ 12.5 kA ☐ 25 kA	☐ 16 kA ☐ 31.5 kA	☐ 20 kA ☐ 40 kA	☐ ___ kA
Rated normal current	☐ 800 A ☐ 2500 A	☐ 1250 A ☐ 3150 A	☐ 2000 A	☐ ___ A
Pole-center distance	☐ 150 mm	☐ 160 mm	☐ 210 mm	☐ 275 mm
Width across flats	☐ 205 mm	☐ 275 mm	☐ 310 mm	

Secondary equipment

For possible combinations, see pages 35 to 40

Circuit breaker installation equipment	☐ Fixed mounting		☐ Withdrawable part, contact arms ☐ Withdrawable part, contact arms, bushings ☐ Withdrawable module with earthing switch ☐ Withdrawable module without earthing switch ☐ Retrofit	
Drive motor	☐ DC ___ V		☐ AC ___ V, ___ Hz	
Closing solenoid	☐ DC ___ V		☐ AC ___ V, ___ Hz	
1st shunt release	☐ DC ___ V		☐ AC ___ V, ___ Hz	
2nd shunt release	☐ DC ___ V		☐ AC ___ V, ___ Hz	
C.t.-operated release	☐			
Undervoltage release	☐ DC ___ V		☐ AC ___ V, ___ Hz	
Auxiliary switch	☐ 6 NO + 6 NC		☐ 12 NO + 12 NC	
Low-voltage connection	☐ 20-pole plug connector or 27-pole terminal strip		☐ 24-pole plug	☐ 64-pole plug
☐ Mechanical interlocking				
☐ Circuit breaker tripping signal				
☐ Electrical closing lock-out				
Operating instructions	☐ German	☐ English	☐ French	☐ Spanish

Application and other requirements

☐ Please check off ___ Please fill in

You prefer to configure your SION vacuum circuit breaker on your own?
Please follow the steps for configuration and enter the article number in the configuration aid.

Instruction for configuration of the SION vacuum circuit breaker

1st step: Definition of the circuit breaker and equipment package (see pages 18 to 34)

Please specify the following ratings:	Possible options:
Rated voltage (U_r)	U_r: 7.2 kV to 24 kV
Rated lightning impulse voltage (U_p)	U_p: 60 kV to 125 kV
Rated short-duration power-frequency withstand voltage (U_d)	U_d: 20 kV, 28 kV, 32 kV, 42 kV, 55 kV, 65 kV
Rated short-circuit breaking current (I_{sc})	I_{sc}: 16 kA to 40 kA
Rated normal current (I_r)	I_r: 800 A to 3150 A
Pole-center distance	150 mm to 275 mm
Width across flats	205 mm to 310 mm

These ratings define the positions 5 to 8 of the article number.

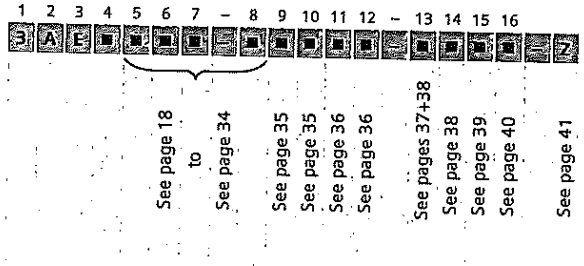
2nd step: Definition of the secondary equipment (see pages 35 to 40)

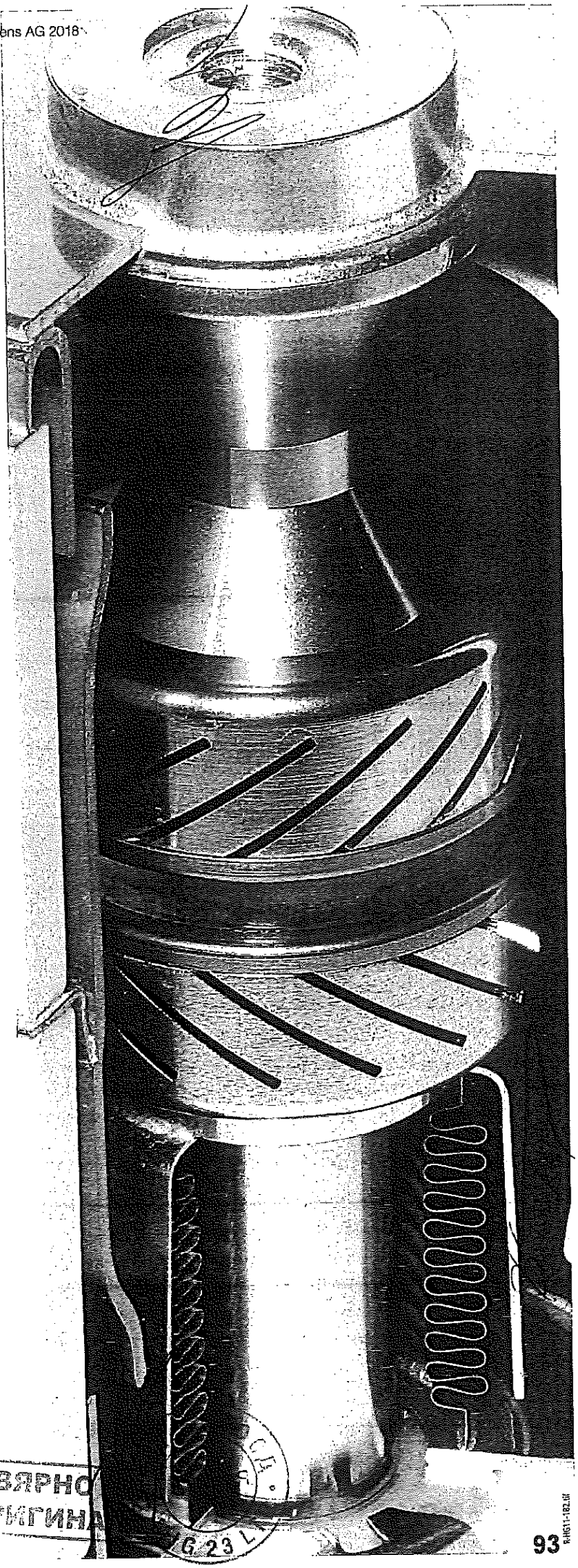
Please specify the following equipment features:	Possible options:
Release combination (position 9)	Shunt release, current-transformer-operated release and undervoltage release
Closing solenoid (position 10)	Operating voltages from 24 V DC to 240 V AC
Operating voltage of the releases (positions 11/12)	Operating voltages from 24 V DC to 240 V AC
Installation accessories (position 13)	Fixed mounting, with withdrawable part, with contact, fixed contact, bushing, cartridge, with/without earthing switch
Drive motor (position 14)	Operating voltages from 24 V DC to 240 V AC
Number of auxiliary contacts (position 15)	6 NO + 6 NC, 12 NO + 12 NC
Design of the secondary connection (position 15)	20-pole plug connector or 27-pole terminal strip, 24-pole plug, 64-pole plug
Mechanical interlocking, circuit breaker tripping signal (position 15)	With or without
Language of the documentation (position 16)	English, German, French, Spanish, Russian, further languages on request
Frequency of the operating voltage of the secondary equipment at AC (position 16)	DC or AC 50 Hz; 60 Hz

These equipment features define the positions 9 to 16 of the article number.

3rd step: Do you have any further requirements concerning the equipment? (Please refer to page 41)
Your Siemens sales partner will be pleased to support you.

For configuration of your
SION vacuum circuit breaker





Get more information

www.siemens.com/lowvoltage

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Energy Management
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Germany

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Security information

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions constitute one element of such a concept.

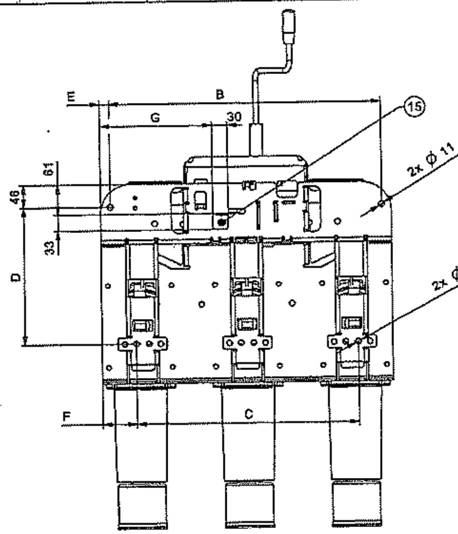
Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks. Such systems, machines and components should only be connected to an enterprise network or the internet if and to the extent such a connection is necessary and only when appropriate security measures (e.g. firewalls and/or network segmentation) are in place.

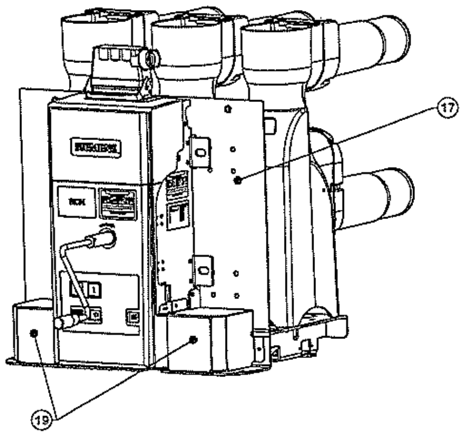
For additional information on industrial security measures that may be implemented, please visit **https://www.siemens.com/industrialsecurity.**

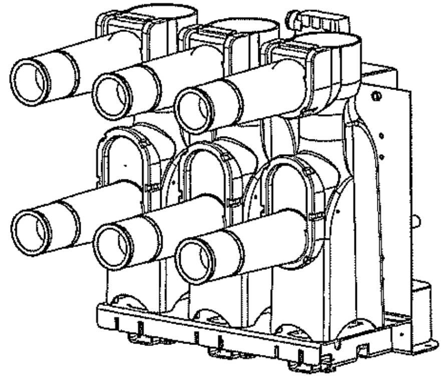
Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends that product updates are applied as soon as they are available and that the latest product versions are used. Use of product versions that are no longer supported, and failure to apply the latest updates may increase customer's exposure to cyber threats.

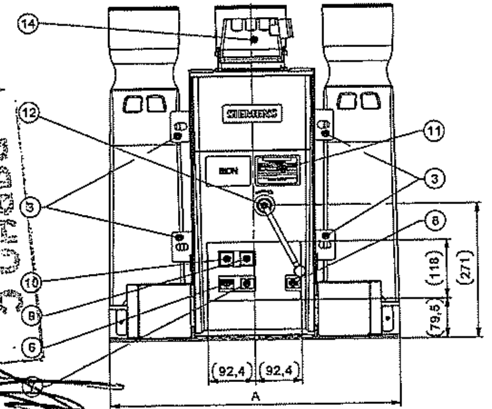
To stay informed about product updates, subscribe to the Siemens Industrial Security RSS Feed under **https://www.siemens.com/industrialsecurity.**

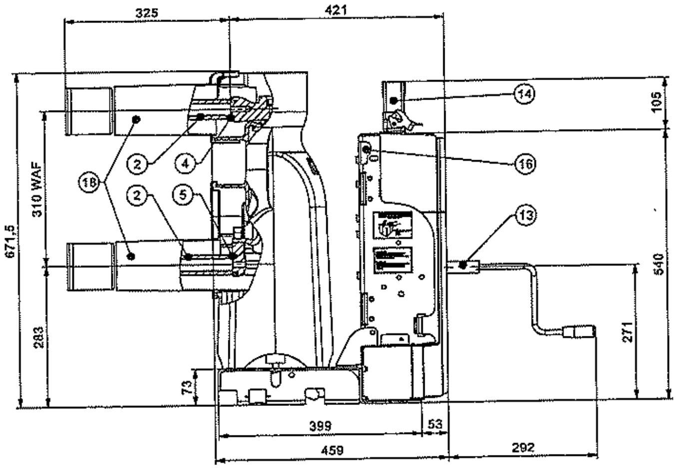
www.siemens.com/SION

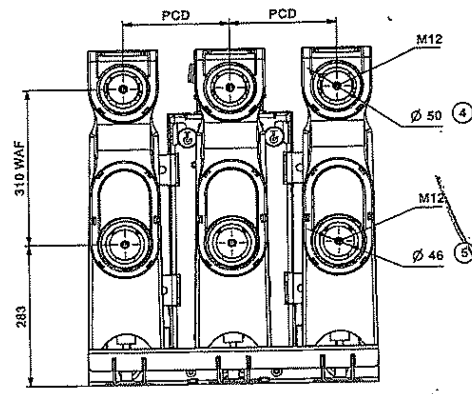


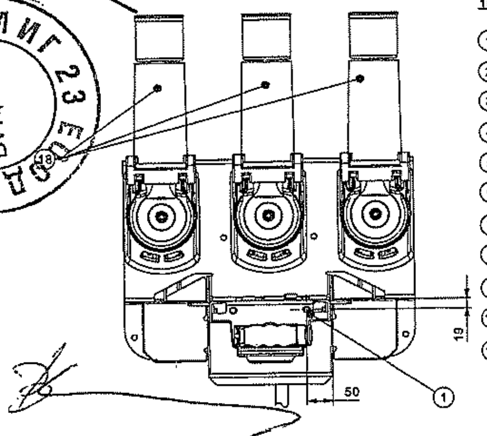












Text zum Maßbild / Legend to drawing
1M S_A7E_109_05000_001 Bl1 / Sheet1:

1. Erdungsschraube M12 / M12 earth-terminal screw
2. Kontaktarme (auf Bestellung) / Contact arm (per order)
3. Schalterbefestigung mit Laschen (auf Bestellung)/ Breaker installation with fixing lugs (per order)
4. Anschlußflache, oben / Upper terminal areas
5. Anschlußflache, unten / Lower terminal areas
6. Schaltspielzahler / Operation cycle counter
7. Schaltstellungsanzeige / Position indicating device
8. Anzeige "Gespannt" / Indication "Charged"
9. Druckknopf "EIN" / Pushbutton "ON"
10. Druckknopf "AUS" / Pushbutton "OFF"
11. Leistungsschild / Rating plate
12. Öffnung für aufsteckbare Handkurbel / Opening for detachable hand crank
13. Handkurbel (auf Bestellung) / Hand crank (per order)
14. 24/64-polige Steckverbinder (Hoehe 91/105 mm) einschließlich Tüllengehäuse mit seitlichem Kabelausgang / 24/64-pole connector (height 91/105 mm) including hood with side-entry
15. Öffnung für mechanische Abfrage und Verriegelung / Opening for mechanical interrogation and interlocking
16. Öffnungen für Kranhaken: 4x Langloch 20x40 / Opening for crane hooks: 4x 20x40 slotted holes
17. IP Plate (auf Bestellung) / IP plate (per order)
18. Trennschale (auf Bestellung) / Insulation shell (per order)
19. Wellenabdeckung (auf Bestellung) / Shaft cover (per order)

Allgemeine Angaben / General data:

1. Bemessung der Stromschienen nach DIN 43 670/671 / Dimension of bus bars according to DIN 43 670/671
2. Geringe Abweichungen der angegebenen Maße zulässig / Minor deviations from shown dimensions permitted

	MLFB	Ur (kV)	Isc (kA)	Ir (A)	PCD (mm)	WAF (mm)	Up (kV)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	Masse (kg)
	3AE53 21-1	24	12.5	800	210	310	125	570	532	435	276	19	67,5	220	64
	3AE53 51-1				275			695	635	325		30	185	282,5	67
	3AE53 21-2			1250	210			570	532	435		19	67,5	220	64
	3AE53 51-2				275			695	635	325		30	185	282,5	67
0A	3AE53 21-3			1600	210			570	532	435		19	67,5	220	69
0A	3AE53 51-3				275			695	635	325		30	185	282,5	72
	3AE53 22-1		16	800	210			570	532	435		19	67,5	220	64
	3AE53 52-1				275			695	635	325		30	185	282,5	67
	3AE53 22-2			1250	210			570	532	435		19	67,5	220	64
	3AE53 52-2				275			695	635	325		30	185	282,5	67
0A	3AE53 22-3			1600	210			570	532	435		19	67,5	220	69
0A	3AE53 52-3				275			695	635	325		30	185	282,5	72
	3AE53 23-1		20	800	210			570	532	435		19	67,5	220	64
	3AE53 53-1				275			695	635	325		30	185	282,5	67
	3AE53 23-2			1250	210			570	532	435		19	67,5	220	64
	3AE53 53-2				275			695	635	325		30	185	282,5	67
0A	3AE53 23-3			1600	210			570	532	435		19	67,5	220	69
0A	3AE53 53-3				275			695	635	325		30	185	282,5	72
	3AE53 24-1		25	800	210			570	532	435		19	67,5	220	64
	3AE53 54-1				275			695	635	325		30	185	282,5	67
	3AE53 24-2			1250	210			570	532	435		19	67,5	220	64
	3AE53 54-2				275			695	635	325		30	185	282,5	67
0A	3AE53 24-3			1600	210			570	532	435		19	67,5	220	69
0A	3AE53 54-3				275			695	635	325		30	185	282,5	72

A1
Millimeters
06-06-2016
0A
12-11-2015
Loeser
EN NS R60 00 2
BLN N 104
800000392535
SIEMENS
Maßbild_M24
Dimension diagram_M24
1M S_A7E_109_05000_001
1+

ВЯРНО С ОРИГИНАЛА

МИГ 23 ЕООД СОФИЯ MIG 23 LTD

6-6-2016 TcRel-4 Loeser,Ralph

SIEMENS

На основание чл.36а ал.3 от ЗОП

Siemens AG, EM LP PRM MV, Nonnendammallee 104, 13629 Berlin

To whom it may confirm

emens.com

Our reference S0959E
Date December 10, 2018

Confirmation of validity of design of 3AE53

We herewith confirm that three-pole Siemens vacuum circuit breaker type SION 3AE53 for Ratings up to 24 kV – 20 kA – 800 and 1250 A equipped with Siemens vacuum interrupters type VSS12-1-31-A5 is able to interrupt 1 200 operations at short-circuit breaking current up to 5 kA or alternative 10 000 operations at load current.
The tests were carried out based on the class E2 procedure.

Siemens Aktiengesellschaft

На основание чл.36а ал.3 от ЗОП

SIEMENS AG

На основание чл.36а ал.3 от ЗОП

Siemens AG
Energy Management Division; Management: Ralf Christian
Low Voltage & Products; Management: Andreas Matthe

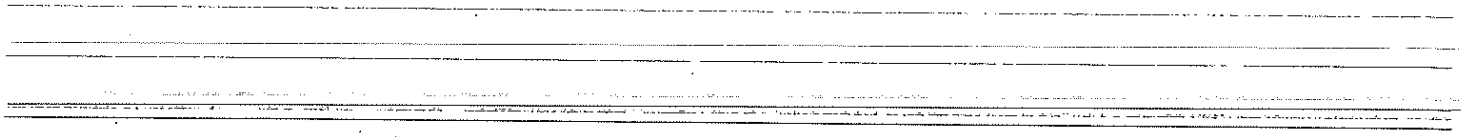
Nonnendammallee 104
13629 Berlin
Germany

Tel.: +49 (30) 386 0

SCF 02/2015 V13.06

ВЯРНО С ОРИГИНАЛА

MIG 23 LTD



Prüffeld der Schaltwerke

Test Document

Report No.: 15-085-ME **Copy No.:** 0 **Contents:** 20 **Sheets**

Test object: Three-pole air insulated withdrawable module with three-pole vacuum circuit-breaker

Designation: 3AX7111-5 with 3AE5324-2 with vacuum interrupters VSS12-1-31-A5
Rated voltage: 24 kV Rated normal current: 1250 A Rated frequency: 50 Hz
Rated short-circuit breaking current: 25 kA

Manufacturer: Siemens AG, EM MS O SD BLN MF, Berlin

Client: Siemens AG, EM MS R&D OC, Berlin

Testing station: Prüffeld der Schaltwerke, Berlin

Date of test: October 22 - 23, 2015

Applied test specifications:

IEC 62271-1, Edition 1.1, 2011-08
IEC 62271-100, Edition 2.1, 2012-09
IEC 62271-200, Edition 2.0, 2011-10

Tests performed:

Temperature-rise test with 1250 A at 50 Hz

Test results:

The test object has passed the tests stated above without any objection. The results obtained and the performances proved of the test object comply with the requirements of the specifications mentioned above.

На основание чл.36а ал.3 от ЗОП

Prüffeld der Schaltwerke Berlin PSW

Berlin, February 08, 2016

ОРИГИНАЛА

MIG 23 LTD. ГЕОФИЗИКА СОФИЯ

DAkkS
Deutsche Akkreditierungsstelle
D-PL-11055-10-01

Notes

1. The testing station of the Siemens switchgear factory (Prüffeld der Schaltwerke), Siemens AG, Berlin, has been approved by the DAkkS (German accreditation body) for rendering the following testing services:
   - mechanical tests,
   - temperature rise tests,
   - environment tests,
   - dielectric tests and
   - power tests (e.g. switching capacity, load switching, short-time current tests, etc.)

   on high-voltage switchgear and controlgear and on power engineering equipment.

   The approval was given under registration no. D-PL-11055-10. Testing services beyond the scope certified cannot be regarded as testing services of an approved testing station. No test documents will be made out for them.
2. In the Prüffeld der Schaltwerke, Siemens AG, Berlin, all tests will be carried out according to EN ISO/IEC 17025 and the pertinent international and national test specifications. Moreover, all criteria specified by the accreditation authority will be taken into account in the tests.
3. The Prüffeld der Schaltwerke, Siemens AG, Berlin, points out that its accreditation or its test documents do not imply that the accreditation authority or another authority have acknowledged the product tested.
4. Test documents or parts thereof may not be used or released by the purchaser for advertising purposes if the accreditation authority considers their use as misleading. Reproduction in extracts of the test documents is acceptable only on condition of the prior consent of the Prüffeld der Schaltwerke, Siemens AG, Berlin. Copying the cover sheet and sheet 2 is an exception.

   If test documents or extracts thereof are to be used for advertising purpose or publication, the agreement of the Prüffeld der Schaltwerke, Siemens AG, Berlin, must be obtained in due time before utilization. If necessary, the Prüffeld der Schaltwerke, Siemens AG, Berlin, will obtain the accreditation authority's consent.
5. If reference is to be made in one way or other to the utilization of the Prüffeld der Schaltwerke, Siemens AG, Berlin, as approved testing laboratory, this shall be worded as follows:

   "Testing by the Testing Station of Siemens Schaltwerke Berlin, which is accredited by the DAkkS (German accreditation body) for tests on high-voltage switchgear and controlgear and power engineering equipment under registration No. D-PL-11055-10".
6. The Prüffeld der Schaltwerke applies the internal procedure PSW-IA 020 for determining the uncertainties of measurement. As long as no explicit statements are made, the uncertainties required by the relevant standards have been complied with.
7. The Prüffeld der Schaltwerke is an independent Test Laboratory in accordance with the standard EN ISO/IEC 17025. During testing and evaluation the head of the Laboratory and the personnel are released from orders of the upper management and accordingly there is no possibility for external influence of the Laboratory, whether commercial or otherwise.

Different type of documents

A Type Test Certificate...

is issued for type tests which have successfully been carried out in full compliance with the relevant specifications or standards valid at the time of the test. For these tests the equipment under test must be clearly identified by technical description, drawings and additional specifications.

A Test Document...

is issued for parts of type tests which have successfully been carried out in full compliance with the relevant specifications or standards valid at the time of test. For these tests the equipment under test must be clearly identified by technical description, drawings and additional specifications.

A Test Report...

is issued for all other tests which have been carried out according to specifications, standards and/or clients instructions. Similarly, this test report contains all test results, details of the conditions under which the tests were carried out, also details relating to the behaviour of the equipment during test, and its condition after the tests.

A Test Confirmation...

is issued immediately after the tests. It confirms that the tests have been conducted and is valid only until publishing the detailed results in an entire document.

Addresses

Testing station: Prüffeld der Schaltwerke
Siemens AG
EM MS R&D OC TD
Nonnendammallee 104
13629 Berlin
Germany

Client: Siemens AG
EM MS R&D OC
Nonnendammallee 104
13629 Berlin
Germany

Manufacturer

На основание чл.36а ал.3 от ЗОП

ВЯРНО С ОРИГИНАЛА

Technical Data of Test Object
Withdrawable Module

Test object:	Three-pole air insulated withdrawable module
Designation:	3AX7111-5
Manufacturer:	Siemens AG, EM MS O SD BLN MF, Berlin
Serial No.:	Withdrawable part and withdrawable cartridge: 3AE5R/00005721
Year of manufacture:	2015
Drawing No.:	Drawings and part lists - see sheet 7

Ratings assigned by the manufacturer:

Rated voltage	24	kV	
Rated normal current	1250	A	
Rated frequency	50/60	Hz	
Rated lightning impulse withstand voltage	125	kV	
Rated switching impulse withstand voltage	-	kV	
Rated power-frequency withstand voltage	65	kV	
Rated peak withstand current	65	kA	
Rated short-time withstand current	25	kA	
Rated duration of short-circuit	3	s	
Insulating medium	air		
Rated filling pressure for insulation	-	MPa	abs. at 20 °C
Minimum functional pressure for insulation	-	MPa	abs. at 20 °C

Further data:

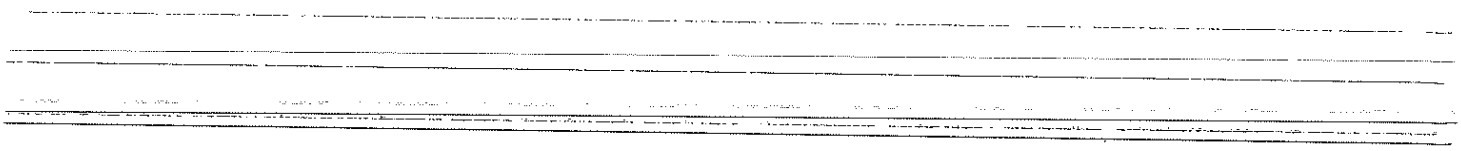
Pole centre distance	210	mm
Width across flats	310	mm

Essential characteristics:

-

ВЯРНО С ОРИГИНАЛА

ИГ 23 ЕООД СОФИЯ MIG 23 LTD



Technical Data of Test Object
Circuit-Breaker

Test object:	Three-pole vacuum circuit-breaker
Designation:	3AE5324-2 with vacuum interrupters VSS 12-1-31-A5
Manufacturer:	Siemens AG, EM MS O SD BLN MF, Berlin
Serial No.:	Ş 3AE5/00005721
Year of manufacture:	2015
Drawing No.:	Drawings and parts lists - see sheet 8 and 9

Ratings assigned by the manufacturer:

Rated voltage	24	kV	
Rated normal current	1250	A	
Rated frequency	50/60	Hz	
Rated lightning impulse withstand voltage	125	kV	
Rated switching impulse withstand voltage	-	kV	
Rated power-frequency withstand voltage	65	kV	
Rated peak withstand current	65	kA	
Rated short-time withstand current	25	kA	
Rated duration of short-circuit	3	s	
Rated short-circuit breaking current	25	kA	
DC component of the rated short-circuit breaking current (Valid for a minimum opening time of XX ms, a relay-time of 10 ms and a time constant of 45 ms)	50	%	
Rated short-circuit making current	65	kA	
Rated transient recovery voltage	41.2	kV	
Rate of rise of transient recovery voltage	0.47	kV/µs	
First-pole-to-clear factor	1.5		
Rated operating sequence	O - 0.3 s - CO - 15 s - CO		
Arc extinguishing medium	Vacuum		
Rated filling pressure for interruption	-	MPa	abs. at 20 °C
Minimum functional pressure for interruption	-	MPa	abs. at 20 °C
Insulating medium	Air		
Rated filling pressure for insulation	-	MPa	abs. at 20 °C
Minimum functional pressure for insulation	-	MPa	abs. at 20 °C
Driving mechanism (type)	Spring, charged by motor		
Number of poles	3		
Number of units per pole	1		
Rated opening time	< 60	ms	
Rated closing time	< 60	ms	
Rated supply voltage of opening device	110	V	d.c.
Rated supply voltage of closing device	110	V	d.c.
Rated supply voltage of auxiliary circuits	110	V	d.c.
Rated frequency of supply voltage	-	Hz	
Rated line /cable-charging breaking current	10 / 31,5	A	
Rated single capacitor bank breaking current	400	A	
Classification of circuit-breaker	Class M2, E2, C2, S1		

Further data:

Serial number of vacuum interrupter in pole L1 / L2 / L3	S000103 /S000195 /S000105
Pole centre distance	210 mm
Width across flats	310 mm

Essential characteristics:

-

ВЯРНО С ОРИГИНАЛА

МИГ 23 ЕООД СОФИЯ MIG 23 LTD.

Prüffeld der Schaltwerke
Berlin

DAkkS
Deutsche
Akkreditierungsstelle
D-PL-11055-10-01

Test Document

Report No.: 15-054-MS-1 **Copy No.:** 0 **Contents:** 114 **Sheets**

Test object: Three-pole vacuum circuit-breaker

Designation: 3AE5324-2 with vacuum interrupters VSS12-1-31-A5
Rated voltage: 24 kV Rated normal current: 1250 A Rated frequency: 50/60 Hz
Rated short-circuit breaking current: 25 kA

Manufacturer: Siemens AG, EM MS O SD BLN MF, Berlin

Client: Siemens AG, EM MS R&D OC, Berlin

Testing station: Prüffeld der Schaltwerke, Berlin

Date of test: August 27 - 31, 2015

Applied test specifications:

IEC 62271-1, Edition 1.1, 2011-08
IEC 62271-100, Edition 2.1, 2012-09

Tests performed:

Short-circuit tests for a rated current of 25 kA at a rated voltage of 24 kV and a rated frequency of 50 Hz for class S1 in test-duties:

T100s : 25.0 kA up to 25.1 kA at 25.6 kV up to 25.8 kV for breaking tests
65.6 kA up to 66.3 kA at 24.6 kV up to 24.7 kV for making tests
T100a : 25.1 kA up to 25.5 kA at 25.6 kV up to 26.6 kV and up to 43% dc-component
T60 : 15.2 kA up to 15.5 kA at 26.5 kV up to 26.6 kV
T30 : 8.0 kA up to 8.1 kA at 25.6 kV up to 26.7 kV
T10 : 2.4 kA at 26.7 kV up to 26.9 kV
Single-phase fault test: 25.4 kA at 15.2 kV in pole L1
Double-earth fault test: 22.1 kA at 24.2 kV in pole L1

Test results:

The test object has passed the above indicated tests without any objection. The proved performance and the results obtained comply with the requirements mentioned above.

Prüffeld der Schaltwerke Berlin Bereich Mittelspannung

На основание чл.36а ал.3 от ЗОП

Berlin, Oktober 05, 2015